



November, 1956

SOAP

and Chemical Specialties

In this issue...

...wing why and how makes
suming of soap simpler

...ing efficiency of new
toilet bowl cleaners

...ck spray use pays off
increased milk output

...n test can provide clue
detergent formulation

R. E. Dumas Milner, chairman of
Milner Products, Jackson, Miss.,
receives Horatio Alger Award
during recent ceremony in Wash-
ington, D. C., from Sinclair Weeks
(right), Secretary of Commerce.



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New Mown Hay
Oriental
Pine Needle
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Sandalwood
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Sweet Pea
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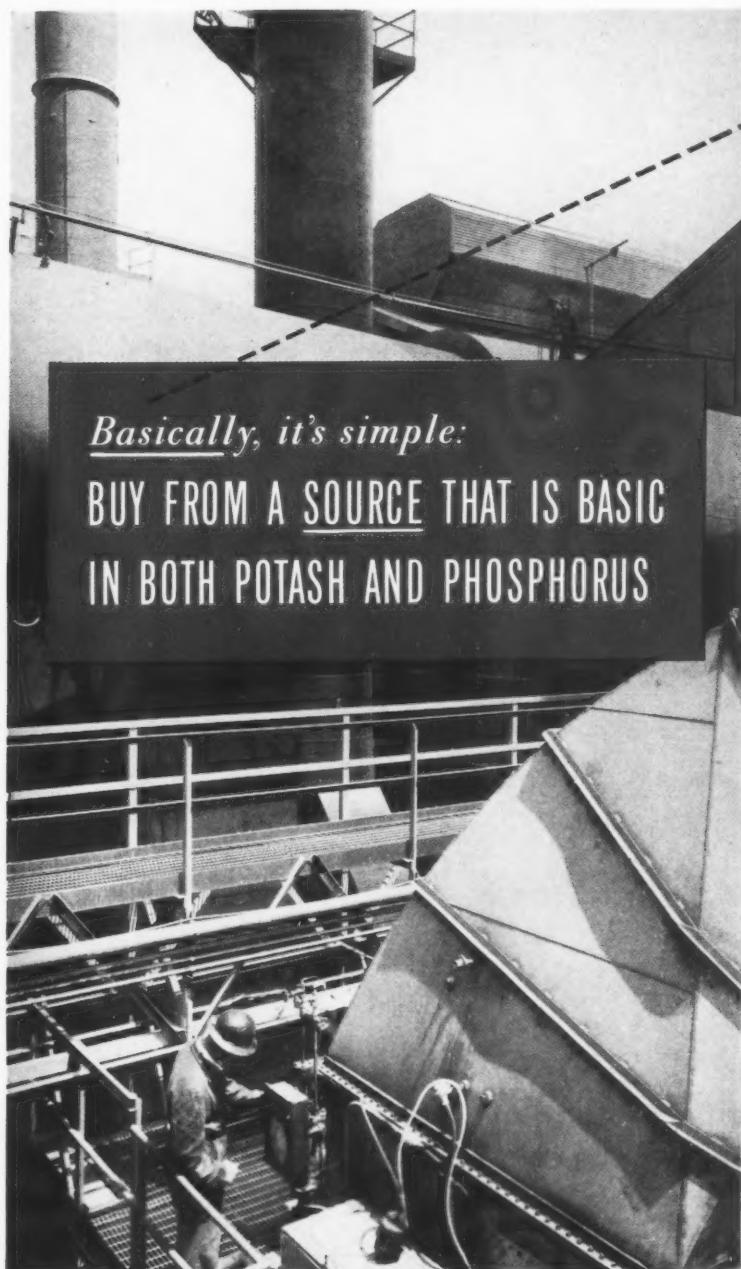
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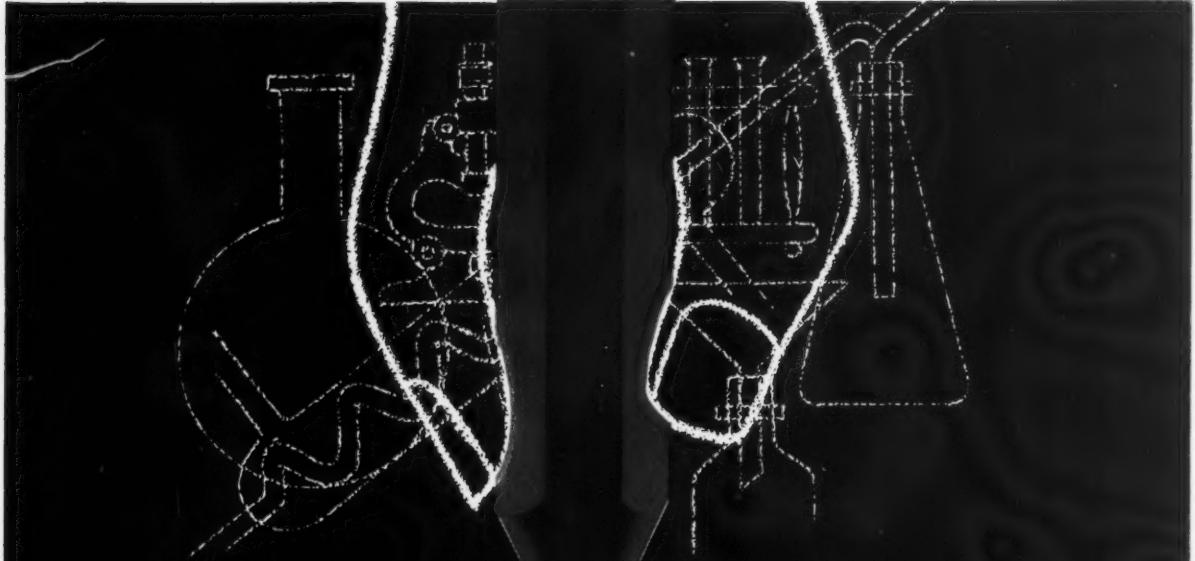
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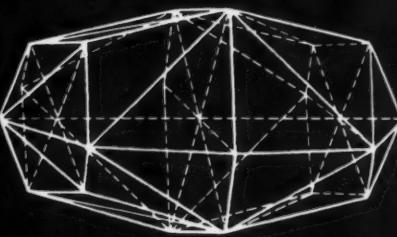
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SOAP

and Chemical Specialties

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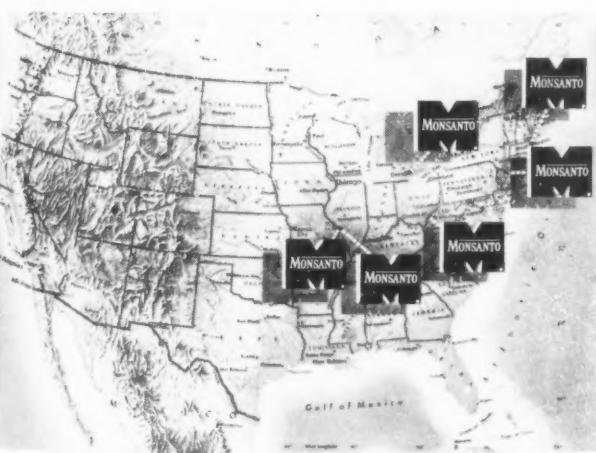
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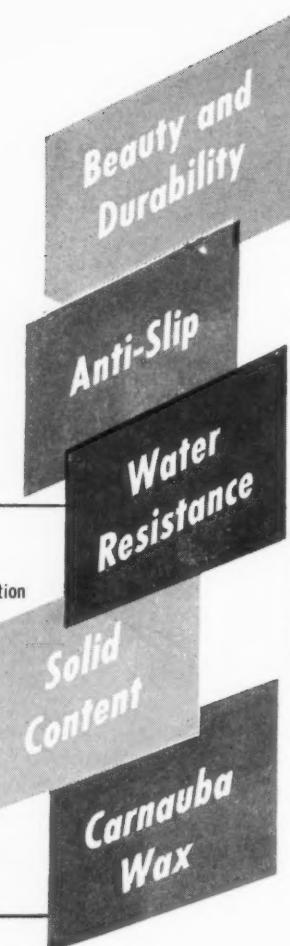
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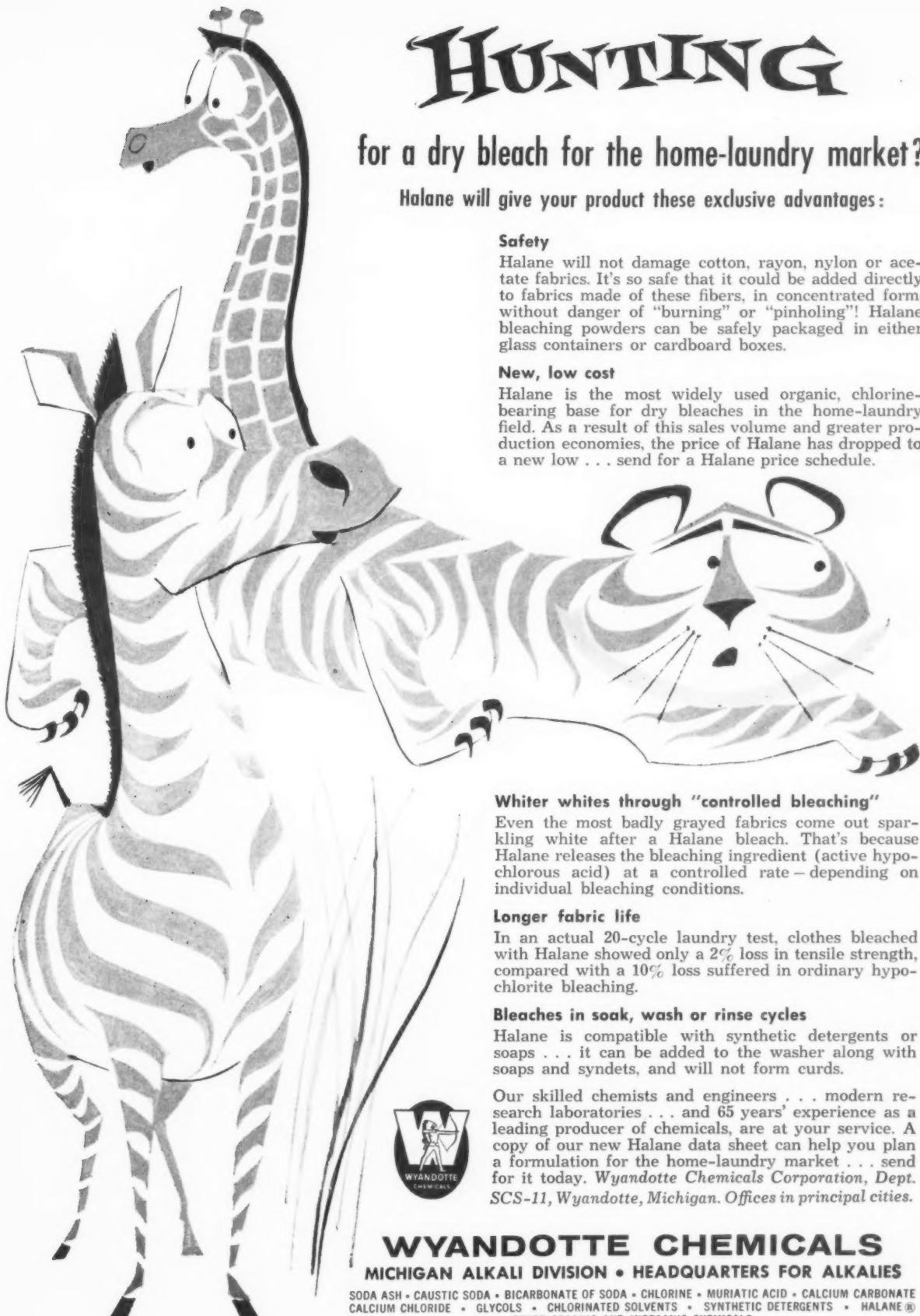
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Color Gardner 1933	2 — 4
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Acid Value	250 — 257
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Does chelation actually represent a new kind of chemistry? Are the possibilities as exciting as many seem to think? This series endeavors to answer these—and many other—pertinent questions on this fascinating subject. It is hoped chemists, engineers and purchasing agents alike will find these answers helpful. Now on to . . .



The Chemistry of Chelation: Part II

Versene and Versenol Series · Descriptions and Uses A measure of Value · A Suggestion

To review in capsule form: Part I introduced chelation, offered examples of typical chemical reactions, applications, and discussed future possibilities. You will remember that a chelating agent is defined as a chemical which surrounds metallic ions with a multiple-ring structure that keeps the metal chemically inactive and holds it in solution. The applications in industry are many—and new ones are being found almost daily. That, of course, brings us to another consideration: different chelating agents for different uses.

VERSENE® AND VERSENOL®

Chelating agents are commercially available from Dow as 15 different products—all based on aminocarboxylic acid derivatives. Among these, wide spectrum performance is shown by two series of products. The Versene series of products (Versene® 67, Versene 100, Versene Powder, Versene Beads, Versene 9 and Versene Acid) is based on EDTA* and the sodium salts of this material. The Versenol series (Versenol® 120, Versenol Powder and Versenol Beads) consists of various physical forms of Na₃HEDTA**. The Versene series, except for Fe+++ in the alkaline pH range, is generally the stronger series of the two (more completely chelates the last traces of metal). The Versenol series is notably stronger for Fe+++ in the mildly alkaline pH range and is usually cheaper on a performance basis if the consumer can tolerate the weaker chelate structure. Versene is the strongest, most stable commercially available chelating agent. It is the one with the greatest number of successful applications.

DESCRIPTIONS AND USES

Here are three Dow chelating agents together with their descriptions and uses:

Versene 100 is a concentrated aqueous solution of a technical grade of the tetrasodium salt of EDTA . . . widely used in textile processing, detergent formulations and metal cleaning.

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*Ethylenediaminetetra acetic acid

**Trisodium salt of N-hydroxyethylethylenediamine-triacetic acid

Versenol 120 is a concentrated aqueous solution of a technical grade of Na₃HEDTA. It is also very valuable to detergent, textile and metal-cleaning processes.

Naturally these three specific agents are not the answer to every problem. That's the reason for the many other Versene products, to be discussed in Part III.

A MEASURE OF VALUE

A measure of the broad performance capacity of a chelating agent can be obtained from its *chelation value*—determined on a reference metal. Calcium is used as the reference metal under the standard test procedure accepted by the industry. Dow prefers this "performance basis". It specifies more clearly what chelating agents *actually accomplish* than such terms as "% solids" and "% active". Consequently, the "100" in Versene 100 means that one gram of this product will chelate 100 milligrams of calcium carbonate in accordance with the standard test procedure. By the same token, one gram of Versene 67 will chelate 67 milligrams, and so on.

A SUGGESTION

Two closing thoughts: Dow wants to help in any way possible to further develop the applications for chelation. Also important, Dow would like to hear from *you*—your thoughts, reactions, suggestions. Please inquire about any problems or ideas you may have. Information or actual technical assistance will be forthcoming promptly. Write, on your company letterhead, to Technical Service and Development, Dept. SC 912H-2, THE DOW CHEMICAL COMPANY, Midland Michigan.

ADDITIONAL TOPICS IN THIS SERIES

PART III

Specific chelating agents for specific applications (agent for iron control depends on pH—Versene Fe-3 Specific® for iron and transition metals on the alkaline side, Versene T® for iron in presence of free caustic—other solutions to special problems).

PART IV

Applications in specific industries (formulation of alkaline cleansers—stabilization of hydrogen peroxide and Kier boiling in textile processing—uniform control of trace metal catalysts in polymerization of synthetic rubber—other industrial applications).

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specification

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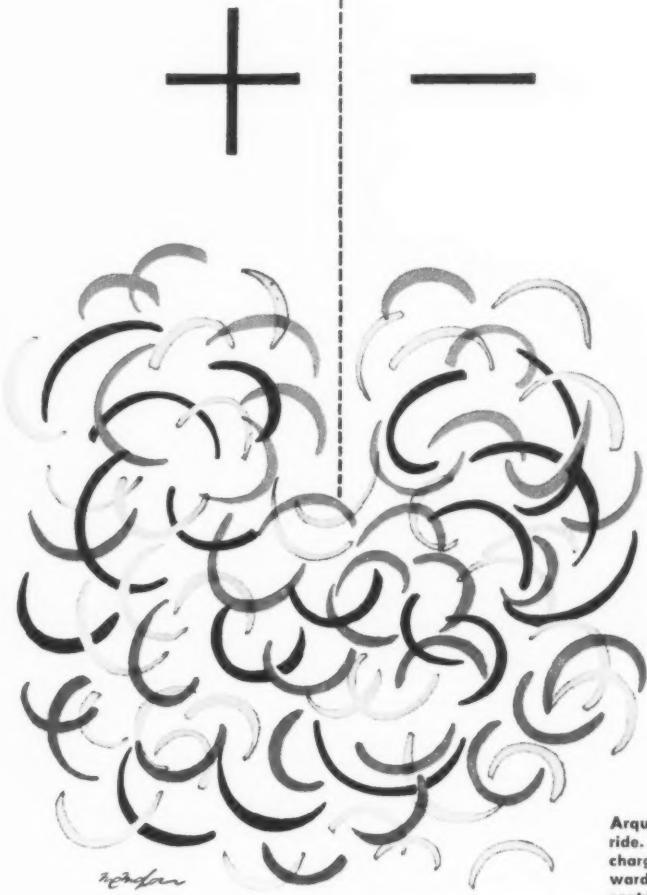
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Arquad 2HT is distearyl dimethyl ammonium chloride. When it attaches itself to fibers, the polar or charged end of the cation tends to orient itself toward the fiber, leaving the 2 fatty tails exposed to contribute their softening characteristics to the goods.

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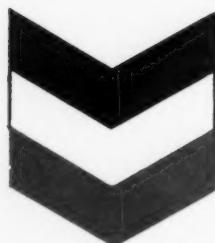
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After Closing..

Spiegel In New Post

The appointment of Mart C. Spiegel as general sales manager of Los Angeles and White King Soap



Mart C. Spiegel

Co., Los Angeles, was announced recently by Andrew K. Forthmann, president. Mr. Spiegel was formerly the firm's Los Angeles divisional manager. He has been associated with the soap industry for 15 years in various sales and managerial capacities.

Los Angeles Soap Co. established in 1858, is the nation's largest regional soap manufacturer, according to Mr. Forthmann. "Last year," he said, "we sold more soap in all states west of Kansas City, Mo., than all competitive companies combined." The firm manufactures "White King" granulated soap, liquid and packaged detergents, water softeners, cold cream toilet soap, cleanser, and cocoa-lemon soap for use with hard water.

Aerosol Contest Judges

The Chemical Specialties Manufacturers Association, New York, recently announced the names of the judges for the 1956 Aerosol and Pressurized Package Contest. The judging was held Nov. 13, at the Chemists' Club, New York. Judges are: Donald Deskey,

authority on package design and its application to merchandising practices; Antoinette Donnelly, beauty editor, *New York Daily News*; Julien Elfenbein, editor of *Housewares* magazine; Edward Molyneux, vice-president of Cunningham & Walsh, Inc., New York; and John A. Warren, American Management Association. The names of the winners in 10 product classes and a "best of show" will be announced during the 43rd annual C.S.M.A. meeting in Washington, D. C., Dec. 4.

— ★ —

Diversey Earnings Rise

Net income and share earnings of Diversey Corp., Chicago, increased to \$561,656 and \$2.17, in the first nine months of 1956, from \$477,934 and \$1.85, in the corresponding period of last year. Third quarter earnings amounted to \$327,157, equal to \$1.26 per common share, compared with \$226,103 and 87 cents in a similar period a year ago.

— ★ —

Enterprise Advances Two

J. H. Lawson, president of Enterprise Paint Mfg. Co., Chicago, and former president of the Federal Varnish Division of Enterprise, has been elected to the newly-created position of vice-chairman

J. H. Lawson



of the board, it was announced recently. Arnold R. Wolff, executive vice-president, will succeed Mr. Lawson as president.

A graduate of Carleton College, Mr. Wolff joined Enterprise in 1945. Since then, he has worked in all divisions of the company. He is a member of the Chicago Paint, Varnish and Lacquer Association.



Arnold R. Wolff

AASGP to Meet Jan. 23-25

The Association of American Soap & Glycerine Producers, Inc., New York, will hold its 30th annual meeting at the Waldorf-Astoria Hotel, New York, Jan. 23-25, it was announced late last month by Roy W. Peet, manager.

Featured speaker of the three-day convention will be L. E. Burney, Surgeon General of the U.S. Army, who will address the association at a luncheon on Jan. 25. Also of interest will be the presentation of a report of the association's activities on synthetic detergents related to problems of water and sewage treatment and a report on the association's activities on cleanliness promotion in both the household and industrial fields.

The Jan. 23 session will be devoted to an industrial division meeting in the morning and a fatty acid division meeting in the afternoon, with a joint luncheon meeting of the two groups in between. A general session is listed for the morning of the Jan. 24, while the afternoon will feature a meeting of the glycerine division and the Maid-

of-Cotton fashion show. The annual members meeting will be held the afternoon of the 25th, following another morning general session. A reception and banquet is scheduled for the evening.

—★—

New Liquid "Perthane"

"Perthane," an insecticide concentrate for use in pressurized moth proofing sprays and household aerosols, is now available as a 75 percent solution in methylene chloride, it was announced recently by Rohm & Haas Co., Philadelphia.

The product, which previously had been marketed only in the technical form, is claimed to have a low toxicity, a good solubility in deodorized aliphatic solvents and a high kill and residual effectiveness against many household pests including moths and carpet beetles. It is approved for use in pressurized moth proofing sprays at concentrations as high as six percent and in household space aerosols at a level of three percent.

Further information and samples can be obtained from Rohm & Haas, Washington Square, Philadelphia 5, Pa.

—★—

Edmund H. Hamann Retires

Dr. Edmund H. Hamann, chief flavor chemist of Fritzsche Brothers, Inc., New York, recently announced his retirement from active service, effective Jan. 1, 1957. Dr. Hamann, who has been associated with Fritzsche for 29 years in various research capacities, will be retained on a part time basis as a special consultant.

—★—

Brainstorming Sessions

A session on brainstorming which had as its theme, "How Can We Better Serve Our Customers," was the highlight of a week-long meeting, held last month by sales representatives of S. B. Penick & Co. and New York Quinine and Chemical Works, Inc., both of New York. In addition to brainstorming, sessions were devoted to the discussion of ideas on methods of salesmanship and to lectures and films of new products.

In New Sales Posts

Two changes in its sales division were announced recently by Pennsylvania Industrial Chem-



M. A. DeBerardinis



E. C. Paschal

ical Corp., Clairton, Pa. Martin A. DeBerardinis has been transferred to the firm's Jacksonville, Fla. office, while Eugene C. Paschal has been appointed to the staff of the Philadelphia office.

Mr. DeBerardinis, a graduate of California State Teachers College, joined Pennsylvania Industrial in 1952 and served for two years in the firm's Chester, Pa., research laboratory. For the past two years he had been assigned to the Philadelphia sales office.

—★—

P&G Quarterly Profit Up

Consolidated net profit of Procter & Gamble Co., Cincinnati, for the three months ended Sept. 30, amounted to \$18,757,920, as

compared with \$17,318,098, in the similar first quarter of the previous fiscal year. The profit after \$17,566,000 for taxes, is equal to 96 cents per common share. It compares with 89 cents per common share last year adjusted for the two-for-one stock split effected last June 1. The tax bill for that quarter was \$18,155,000.

—★—

Wax Importers Elect

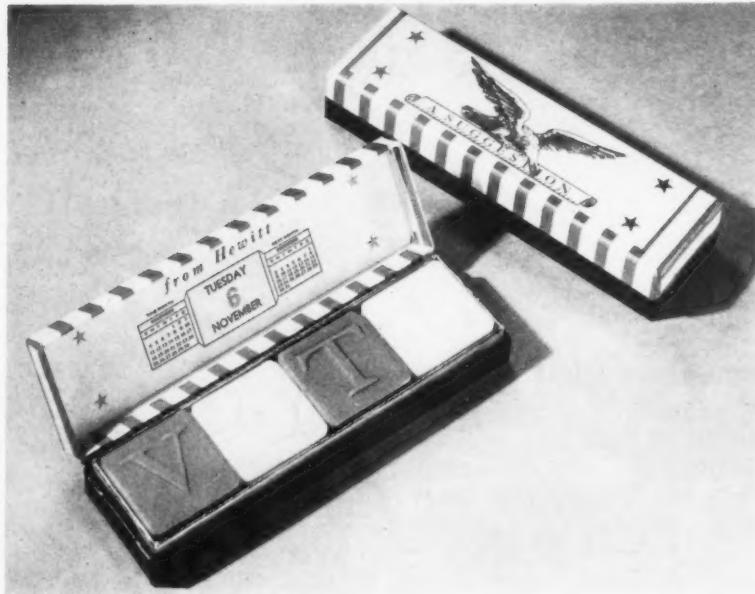
Luis M. Argueso, Sr., president of Mamaroneck Chemical Co., Mamaroneck, N. Y., was recently reelected for a third term as president of the American Wax Importers & Refiners Association. Robert I. Strayer of Smith & Nichols, Inc., Carlstadt, N. J., was elected vice-president. The annual meeting of the association was held last month at the New York Athletic Club.

—★—

CDCA to Meet Nov. 15

The election of 1957 officers, a hospitality hour, and a luncheon, will highlight the annual meeting of the Chicago Drug & Chemical Association to be held at the Hotel Congress, Chicago, Nov. 15. A session will also be devoted to voting on proposed amendments to the by-laws.

Election Day note from Hewitt Soap Co., Dayton, O., is reminder to vote—in soap. The Hewitt promotion for its line of private label soaps features 6 1/4 x 1 1/4 inch red, white and blue box. Cover carries words: "A Suggestion." Inside cover of box is calendar featuring election day date beneath words "from Hewitt." Four small soap cakes, two in white, one each in red and blue, each carry one stamped letter to spell out "Vote."





New branch office of Selig Co., Atlanta manufacturer and distributor of sanitary chemicals, at 1050 E. 32nd St., Hialeah, Fla. Unit can package, store and ship firm's line.

New Selig Branch

Selig Co., Atlanta, Ga., manufacturer and distributor of sanitary chemicals and floor maintenance materials, recently announced the opening of a branch office at 1050 East 32nd St., Hialeah, Fla. The new unit is equipped with modern packaging, handling and shipping facilities which are designed to improve service and expedite shipments to southern Florida.

Miss Maurin to Roubechez

Jeanne Maurin has been appointed international representative of Roubechez, Inc., New York essential oil and aromatics house and of Bruno Court, Grasse, France. Roubechez's associate, it was announced recently. For the past 14 years Mme. Maurin had been manager of Les Parfums de Dana, Inc., New York. She is in Grasse at present on a business visit.

C-P Earnings Drop Sharply

Third-quarter earnings of Colgate-Palmolive Co., New York, fell 62.6 percent below the corresponding period in 1955, the company reported recently. Net income for the nine months ended Sept. 30, was 28.7 percent lower than the 1955 period.

C-P reported that net income in the third-quarter amounted to \$2,375,850, equal to share earnings of 91 cents, compared with \$5,016,272, equal to share earnings of \$1.99, a year ago. Earnings for the first nine months totaled \$6,781,-

367, equal to share earnings of \$2.59, against \$9,517,108 and \$3.73, in the 1955 period. Net income from dividends of foreign subsidiaries declined to \$3,576,523 from \$4,029,279 for the ninth-month period and to \$1,299,558 from \$1,981,812 for the three-month period.

Jules Tanenbaum Dies

Jules S. Tanenbaum, 57, Brooklyn, Queens and Long Island sales representative for Uncle Sam Chemical Co., New York, died Oct. 22. Mr. Tanenbaum had been in the hospital for about a week for a physical check-up and died of blood poisoning following surgery. He had been with Uncle Sam Chemical Co. for over 22 years. The firm makes a full line of chemical specialties for the industrial and institutional trade which it markets under its own brands, as well as private label.

A life member of the Knights of Pythias Arion Lodge 342, Mr. Tanenbaum is survived by his wife, Regina; two sisters and a brother.

New Automatic Filler

A new automatic filling machine, designed to package hard-to-flow liquids, gases and other combustible materials commonly used in the manufacture of toiletries, cosmetics and household products, was recently introduced by Oil Equipment Laboratories, Inc., Ridgewood, N. J. Called "Pres-O," the machine is air-operated and is

capable of filling up to 40 containers per minute. It is also equipped with pneumatic start and stop controls for remote operation.

Julio G. Bejarano Dies

Julio G. Bejarano, 54, manager of the Denver plant of Shell Chemical Corp., New York, died Oct. 24, at Denver Hospital, Denver, Colo., after a brief illness.

New Johnson Insecticide

S. C. Johnson & Son, Inc., Racine, Wis., recently announced the addition of a new aerosol-type ant and roach killer to its "Raid" line of household insecticides. The new product, distribution of which will be limited to the south, is designed for use around doorways and under sinks and other areas where crawling insects are found. According to R. W. Carlson, marketing vice-president, the new insecticide is a residual type. It is available in 11-ounce aerosol containers and will be merchandised as a companion product to "Raid" liquid roach and ant killer.

International Wax Booklet

International Wax Refining Co., Valley Stream, N. Y., recently published a booklet listing its current line of natural and synthetic waxes. The catalog gives prices and specifications and carries a number of suggestions for end uses of its products. Several sample formulations are appended.

Merger Approved

The stockholders of Continental Can Co., New York, and Robert Gair Co., New York, have approved the merger of Gair into Continental, effective immediately, it was announced late last month by Gen. Lucius D. Clay, board chairman of Continental. At the same time, it was announced that in accordance with the merger agreement, four Gair directors, George E. Dyke, president, Raymond F. DeVoe, Robert L. Fitts, and Parker Newhall have been added to Continental's board.

Myron Smith Heads NPCA

The National Pest Control Association elected Myron W. Smith, Hill-Smith Termite Control Co., Memphis, Tenn., as president at its 23rd annual convention held Oct. 22-25, at the Sheraton-Cadillac Hotel, Detroit. The group elected J. C. Redd of Redd Pest Control Co., Jackson, Miss., as executive vice-president, and re-elected its secretary-treasurer, Harold Schnorrenberg of Dead Shot Chemical Co., Oklahoma City. Dr. Ralph E. Heal, executive secretary of the association, will assume the duties of public relations officer in addition to his responsibilities as head of the association staff. Two new honorary members were elected: Arnold Mallis of Pittsburgh, Pa., and Jay Harrie Burdge of Raymond, Me. Mr. Mallis is the author of "Handbook of Pest Control."

NPCA chooses convention cities five years ahead. The 1961 meeting will be in Miami Beach, Fla. Next year's convention is set for Louisville, Ky., 1958 for Washington, D. C., 1959 for Biloxi, Miss., and 1960 for Tulsa, Okla.

At the Detroit meeting the membership granted authority for the purchase of a building in the New York-New Jersey area to house the NPCA national headquarters. Funds for the purchase have been contributed by members over the past three years as a tribute to the late William O. Buettner. The new association headquarters is to be known as the Buettner Memorial Building.

—★—

Rohm & Haas Files Appeal

Rohm & Haas Co., Philadelphia, filed an appeal last month against a decision by the Federal District Court of West Virginia which held invalid the patent under which the firm markets its "Dithane" brand fungicide. The decision evolved from the company's recent patent infringement suit against Roberts Chemical Co.

D. S. Frederick, Rohm & Haas president, said, "Our confidence in the validity of our patent is unshaken by this decision. We

believe we were right in suing to enforce our patent. In authorizing our counsel to appeal, we feel we have taken a proper and necessary step, not only in protection of our own interests, but also in the interests of our distributors and dealers."

—★—

Court Denies Johnson Plea

The Supreme Court last month declined to review an unsuccessful effort by S. C. Johnson & Son, Inc., Racine, Wisc., to bar the use of the name "Glass Wax" by Gold Seal Co., Bismarck, N. D. Johnson appealed to the high tribunal after lower federal courts refused to issue an injunction against use of the name on the glass cleaning material.

Johnson was also denied an accounting of profits and award of damages. It had alleged the "Glass Wax" mark constituted false representation and description of goods, thereby causing damage to the firm. The court gave no reason for its refusal.

—★—

Vaughn Resigns

Dr. Thomas H. Vaughn, vice-president in charge of research and development of Colgate-Palmolive Co., New York, has resigned effective Nov. 1. He will announce his future plans shortly.

Dr. Vaughn had been associated with C-P almost exactly three years. He left Wyandotte Chemicals Corp., Wyandotte, Mich., Nov. 1, 1953, to accept the Colgate post.

Dr. Thomas H. Vaughn



New Insecticide Curbs

The Government has imposed stiffer safety requirements on some insecticides because of new evidence that they might be more poisonous to humans than had been expected, it was announced late last month.

George P. Larick, Food and Drug Commissioner, said his scientists had found that organic phosphates used to protect food crops might be more dangerous when used in combination than singly. He said there was no indication that safety levels now in effect for organic phosphates "constitute any hazard to public health."

Manufacturers will now be required to provide "experimental evidence" showing that the toxicity of a given compound when fed to test animals with each of the organic pesticides, was within safe limits.

—★—

New P & G Shampoo

The introduction of three differently formulated shampoos, tradenamed "Velvet Blend," was announced recently by Procter & Gamble Co., Cincinnati. The products will be marketed initially in Denver. Plans for merchandising in other areas will be announced at a later date.

According to P&G, the new shampoos were created to combat the three most common hair problems mentioned by women in a nationwide survey recently completed by the company. The formulas are designed for dry, normal and oily hair and contain "naturline," a new P&G shampoo ingredient that is claimed to be 92 percent similar to hair oils.

—★—

Morel Joins Mona

Dr. Theodore Morel has joined Mona Industries, Inc., Paterson, N. J., as chief chemist, it was announced recently. Dr. Morel formerly was connected with Chemical Research Associates, Bernardsville, N. J. In his new post, Dr. Morel will supervise the chemical phase of Mona's plant operations and head the research department.



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DR. LOUIS C. BARAIL
Consulting Biochemist and Toxicologist

10 EAST 43RD STREET
NEW YORK 17, N.Y.

May 9, 1955
No. T-17

The Miranol Chemical Company, Inc.
275 Coit St., Irvington, N.J.

EYE IRRITATION TEST REPORT

We have tested your sample of 20 per cent Miranol C2M for eye irritation according to the method of Draize, Woodard and Colver. 0.1 cc of the sample was instilled in the conjunctival sac of rabbits. One eye was used for the test, while the other eye was used as a control. The eyes of the animals were observed after 1, 24 and 48 hours.

Results
The following results were obtained on the cornea, iris and conjunctiva:

	Instilled eyes		
	1 hour	24 hours	48 hours
Cornea	0	0	0
A. opacity	0	0	0
B. area of cornea involved	0	0	0
Iris	0	0	0
Conjunctiva	0	0	0
A. redness	0	0	0
B. chemosis	0	0	0
C. discharge	0	0	0
Totals	0	0	0
Control eyes	0	0	0
Totals	0	0	0

Conclusions

The above results showing the total readings of 0, 0 and 0 after 1, 24 and 48 hours indicate that the submitted sample of Miranol C2M is not irritating to the eyes of rabbits.

Respectfully submitted
Dr. Louis Barail
Dr. Louis C. Barail

DR. LOUIS C. BARAIL
Consulting Biochemist and Toxicologist

10 EAST 43RD STREET
NEW YORK 17, N.Y.

The Miranol Chemical Company, Inc.
275 Coit St., Irvington, N.J.

May 9, 1955
No. T-18

SKIN IRRITATION TEST REPORT

We have examined a sample of 20 per cent Miranol C2M to determine whether it contains primary skin irritants. The method used was the animal intradermal single injection method.

0.5 cc of a 5 per cent solution of the sample was injected with aseptic precautions intradermally into rabbits. As a control, 0.5 cc of under the same conditions into the animals.

Twenty-four hours after the injection, the animals were observed for the presence of skin irritation in comparison with that of olive oil castile shampoo.

Samples	Results	Reaction on skin
20 per cent Miranol C2M		-
Olive oil castile shampoo		++
Legend		
- No irritation		
+ Slight reaction		
++ Definite reaction		
+++ Very definite reaction		
++++ Very definite and spreading reaction		

Conclusion

The above results indicate that the sample of 20 per cent Miranol C2M is not irritating when injected intradermally into rabbit skin.

Respectfully submitted

Dr. Louis Barail
Dr. Louis C. Barail

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As the intradermal injection test report shows (the severest test of its kind) MIRANOL C2M CONC. caused no reaction (-) whereas the accepted standard for mildness (Olive Oil castile shampoo) caused a "definite reaction" (++) . Water causes a slight reaction, thereby proving to be more irritating than MIRANOL C2M CONC. Practically all surface active agents show irritation ratings of ++ to +++ or higher.

Where the complete absence of irritation is desirable, MIRANOL C2M CONC. should be used. It is recommended for the formulation of shampoos, hand soaps, rug shampoos and all household and/or industrial cleaner formulations. As a shampoo, MIRANOL C2M CONC. is a profuse and instant flash foamer, even on first application. Due to its substantivity, the hair is left in excellent and manageable condition, simulating that of a cream rinse. Crystal clear products with exceptional temperature stability can easily be formulated.

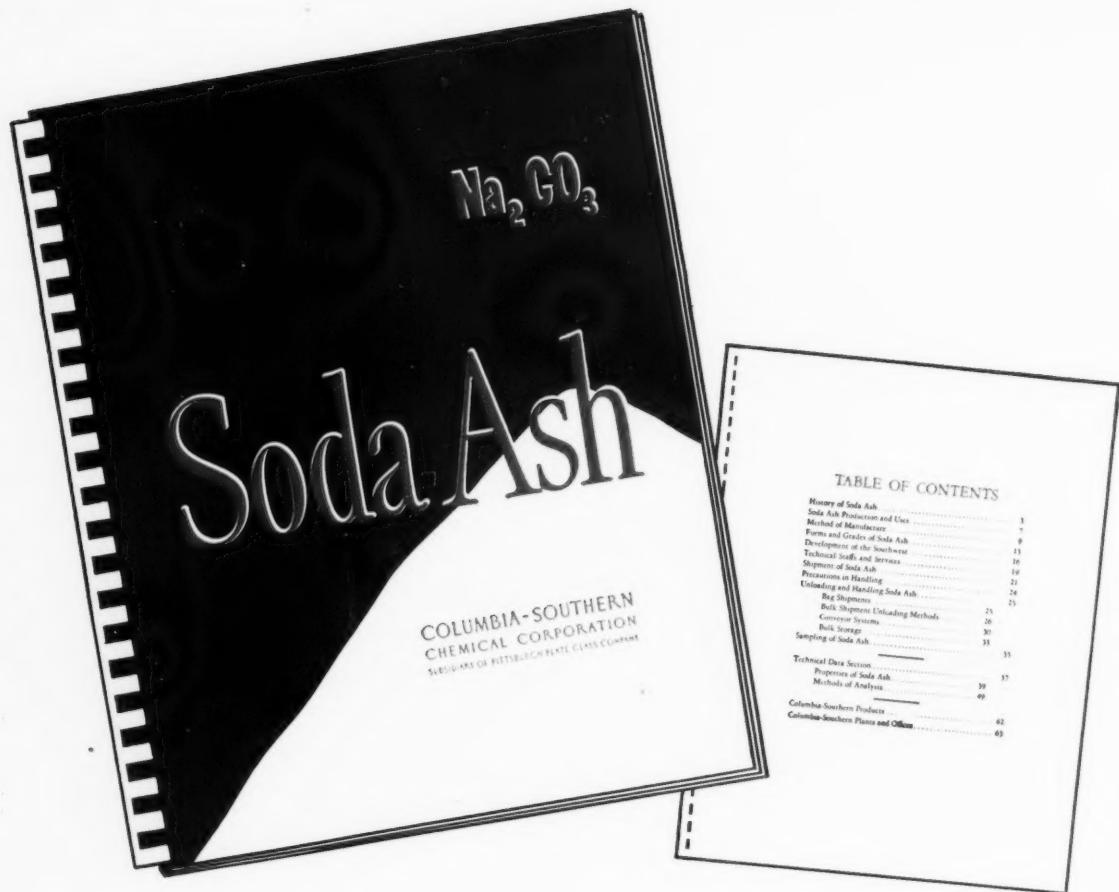
MIRANOL C2M CONC. is compatible with quaternary germicides and may be used in the formulation of non-irritating medicated shampoos or hand soaps. When combined with normally irritating surfactants MIRANOL C2M CONC. will materially reduce or even completely eliminate all irritating properties.

* U. S. Patent No. 2,528,378

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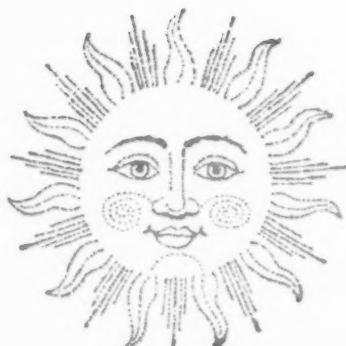
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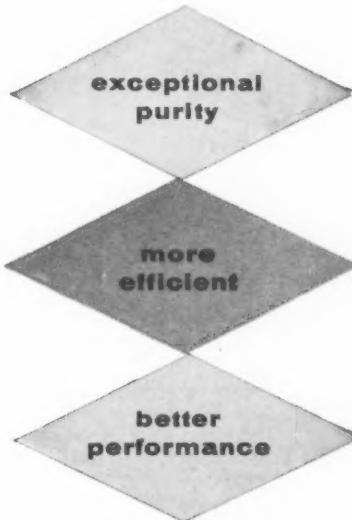


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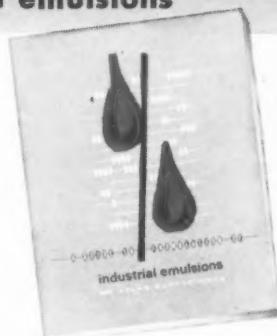
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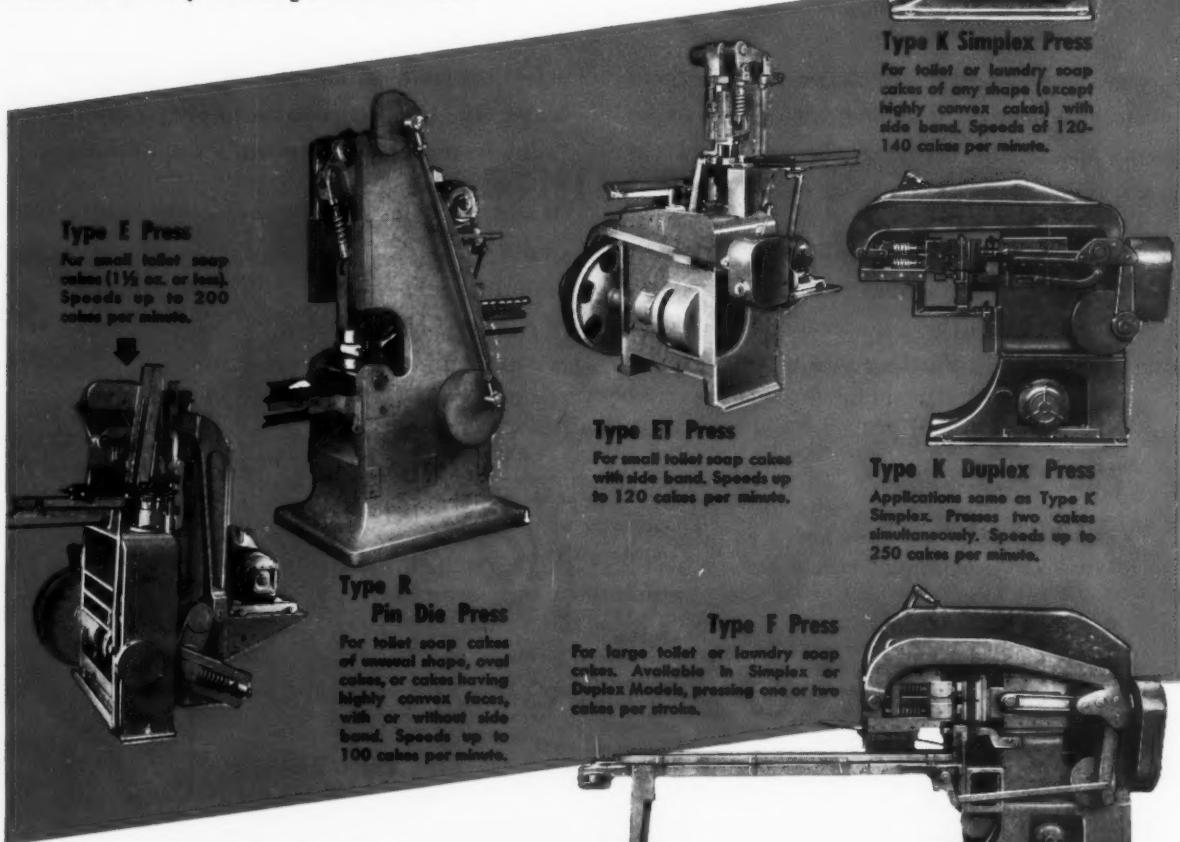
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CINCINNATI, OHIO

... in brief

as the editor sees it . . .



POISONING AGAIN . . . A new book on accidental poisoning, this one called "Accidental Poisoning in Childhood" by Dr. Edward Press, has made its appearance. The volume is sponsored by the Committee on Accident Prevention of the American Academy of Pediatrics and is held out to be a "reference guide to the chemical constituents of common household substances, together with treatment recommendations for their accidental ingestion by children." It lists chemicals and drugs, common and otherwise with antidotes, also a list of trade marked household chemical specialties and drugs.

In addition to being woefully incomplete, this book gives a great deal of misinformation. In spite of his impressive list of titles, the author, or his editors, obviously were unqualified for the job they undertook. The volume covers 131 pages. To be anywhere near complete, it would have to be about ten times this size. It could not be otherwise that this book was obsolete before the ink was dry on its pages. It well could mislead the practicing physician, give him a false sense of security. Obviously, this book should never have been published.

* * * * *



SOAP POWDER. . . The recent closing of two plants making soap powder and the completion of condemnation proceedings against the plant of a third major manufacturer have thrown a heavy load on the remaining producers of a commodity that has suffered from the inroads of synthetic detergents. With consumption of soap powder declining, particularly for household use,—although still doing pretty well in industrial, government and institutional channels—, few soap producers are interested in expanding their output. Particular-

ly where the price-profit margin is so narrow.

The elimination of two producers and the temporary, at least, removal of the production of a third, could mean quite a market squeeze. The irony of the situation is that production facilities are disappearing faster than the decline in consumption—an unusual situation in a highly competitive field.

* * * * *



TRADING STAMPS. . . The recent rebirth of trading stamps has raised a tempest in food store merchandising. This style of premium distribution, so popular a half century ago in grandma's day and which practically disappeared in the interim, has had a resurgence to popularity to the tune of \$600,000,000 annually. That is the rate at which trading stamps are being issued and redeemed today. A number of the large food chains have joined the parade which has swelled the total to such a figure. By and large, small merchants bitterly oppose the idea, term it a racket and give it other uncomplimentary titles.

To the manufacturer of detergents, waxes and other chemical specialties, trading stamps must indeed present a strange picture. Here's the retailer who for years has been screaming his head off in opposition to all sorts of special deals put forth by the manufacturer, now climbing aboard the "special deal" bandwagon himself, further complicating his already complicated business. As for the cost, obviously it comes right out of his profit if competition will not permit an adequate boost in prices. Or he may eye the manufacturer as a likely one to absorb all or part of the cost forced upon him—according to his version—by competition.

When trading stamps flourished years ago, there were no supermarkets, few if any large food

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to find
these
properties

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London, Ont. Canada

chains. Trading stamps died out just as a matter of course. The same thing may happen again. But in the meantime, we hope that no manufacturer is dumb enough to become enmeshed in any way in this added complication to modern merchandising.

* * * * *

L ROLLING SOON. . . . The contemplated aerosol publicity program under the sponsorship of the Chemical Specialties Manufacturers Association will get rolling as soon as the necessary funds are raised among members of the association in the field of pressure packaging. Letters soliciting contributions, based on estimated volume of business in the aerosol field, will be sent out shortly.

The idea of the aerosol publicity program has been approved by the board of CSMA. Its overall operation will be supervised by the association. To achieve maximum effectiveness, a two year plan is contemplated, the extent of which will depend on how much money is raised to support it.

The growth of aerosols in the past 10 years has been phenomenal. To solidify this growth and to expand the total aerosol market, a publicity program is not only timely, but can pay dividends.

Although it is anticipated a sizable sum will be raised, individual firms, particularly those with brands or products to promote, must do more than just make a contribution and feel the rest is up to the committee or agency handling the program. More than ever, company publicity and advertising will have to tie in to gain the greatest results for the individual participant.

* * * * *

L PACKAGING COSTS. . . . Costs of packaging and packaging materials continue to move steadily upward. But the upward movement in costs today is not fully comparable to costs of just a few years ago. Packages today are something altogether different from what they were back a short time ago. Then, their main function was to protect the product and get it to the consumer in good condition. Package beauty was not such an important adjunct of merchandising. Today, the package is first and foremost a

salesman, an attention-getter to stimulate impulse buying, to out-attract competitive products. And as such, packages are far more complicated, far more expensive than comparable packages of the past.

As to package costs, the manufacturer is between the devil and the deep blue sea. He spends more money for packaging or his product loses its place in the sun. He cannot just close his eyes and say his packages today are costing so much more than ten years ago, and look for ways to cut costs. Because of its greater importance to the sale of any product, the package today must cost a higher percentage of the over-all product cost than ever before. And if the current trend in supermarket merchandising continues, then the proportion of package cost will continue to rise in the years ahead. That through some hocus pocus or a magic wand, package costs may turn downward, we feel is a dream not based on fact. Packaging costs will continue upward for some time to come.

* * * * *

L CARTER PATENT. . . . The refusal of the U. S. Supreme Court to review the rulings of two lower courts in upholding the so-called Carter patent on aerosol shave products has come as a blow to loaders and marketers of pressurized shave lathers. Their dilemma is this: either sign a licensing arrangement with Carter or try to figure out a way to get around the patent. Another alternative is to discontinue loading or marketing aerosol shave products.

Already some of the larger marketers of pressurized shave lathers are resorting to the use of petroleum derived propellants to get around the patent, we are told. Because of the need of rapid transition from normal fluorinated hydrocarbon propellants, the new aerosol products based on butane still have "bugs" that may be overcome through further research. Or may not.

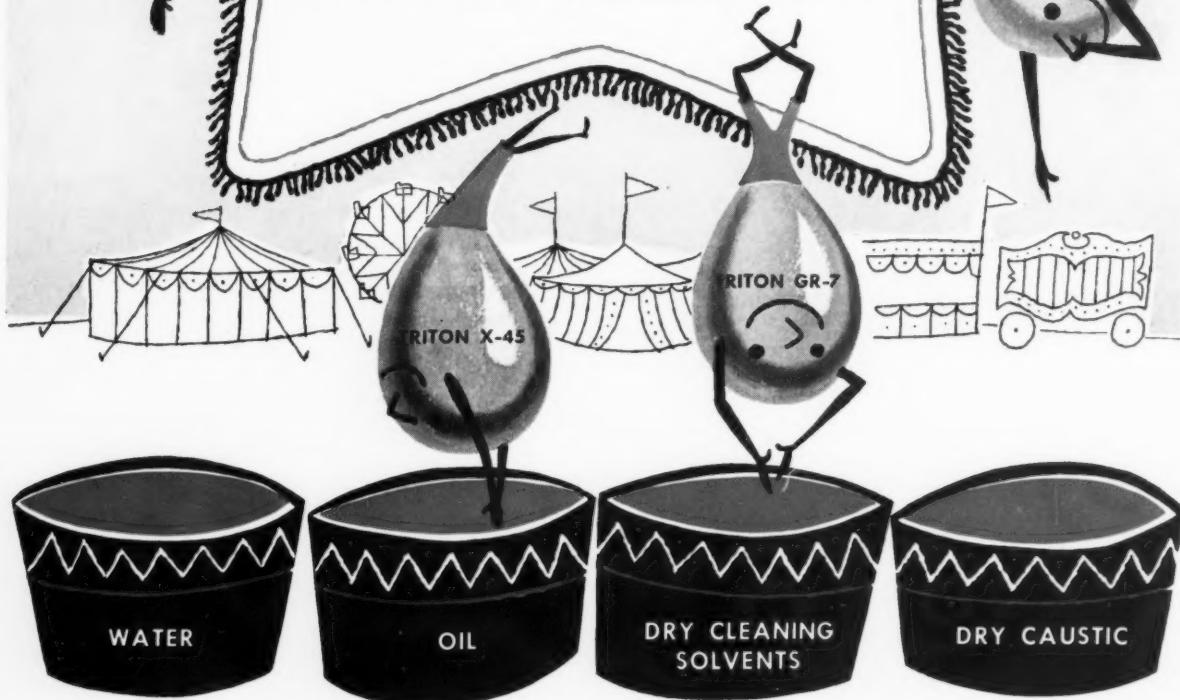
Another question that presents itself is the extent of the patent coverage. Does it apply only to shave lathers, or to shampoos, hand cleaners and similar soap-based foam products dispensed under pressure? On this point there is considerable confusion. Only time and possible further litigation may provide an answer.

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Okinawa Termites

Editor:

We were very interested in your comments regarding termites on Okinawa, which appeared in the "Tale Ends" on page 188 of the August issue of *Soap & Chemical Specialties*, and we are wondering if further information can be developed on this.

We would appreciate any information which you may have.

A. WILLIAMS

Division Representative
Shell Chemical Corp.
New York

— ★ —

More on Termites

Editor:

In your column, "Tale Ends," Volume 32, No. 8, August, 1956, of *Soap & Chemical Specialties*, you make note of termite troubles in Okinawa. The damage quoted is \$270,000.

Would it be possible for you to give us the original source of this information. Among other phases of deterioration and its prevention, we are interested in costs. Thus, such figures would be very helpful to us.

C. J. WESSEL, Director
Prevention of Deterioration Center
National Research Council
Washington 25, D. C.

To readers Wessel and Williams, we regret that we no longer have the original source of this item. However, we suggest that they contact the Voice of America in Washington as a possible source for further information on termite damage on Okinawa.—Ed.

— ★ —

Reprints

Editor:

If reprints are available, can you supply us with 10 copies of your article, "Trends in Brake Fluid Laws," which appeared in the August, 1956, issue of *Soap & Chemical Specialties*?

E. L. MEADOWS, Supervisor
Marketing Information Center

Carbide and Carbon Chemicals Co. New York

In addition to the article referred to by Mr. Meadows, who directed his request to the author, Robert L. Ackerly of Cummings, Sellers, Reeves & Conner, Washington counsel for the Chemical Specialties Manufacturers Assn., other information on brake fluid legislation may be obtained from the Chemical Specialties Manufacturers Assn., 50 E. 41st St., New York 17, N. Y. CSMA is making a compilation of brake fluid laws which will be published in loose leaf form. Additional laws, as they are promulgated, will be made available by CSMA for inclusion in the booklet.—Ed.

— ★ —

Seeks Address

Editor:

In a recent issue of *SOAP* magazine you published a news item and picture on "Alumicone," marketed by Mark "A" Products Co., New York.

Would you please be good enough to give me the address of

Mark "A" Products Company. I cannot seem to locate the firm in the New York telephone directory.

H. M. JOSEPH
Collingswood, N. J.

To Mr. Joseph and other readers who may be interested in "Alumicone," which was pictured in the July issue of *Soap & Chemical Specialties*, the address of Mark "A" Products Co. is P. O. Box 24, New York 69, N. Y.—Ed.

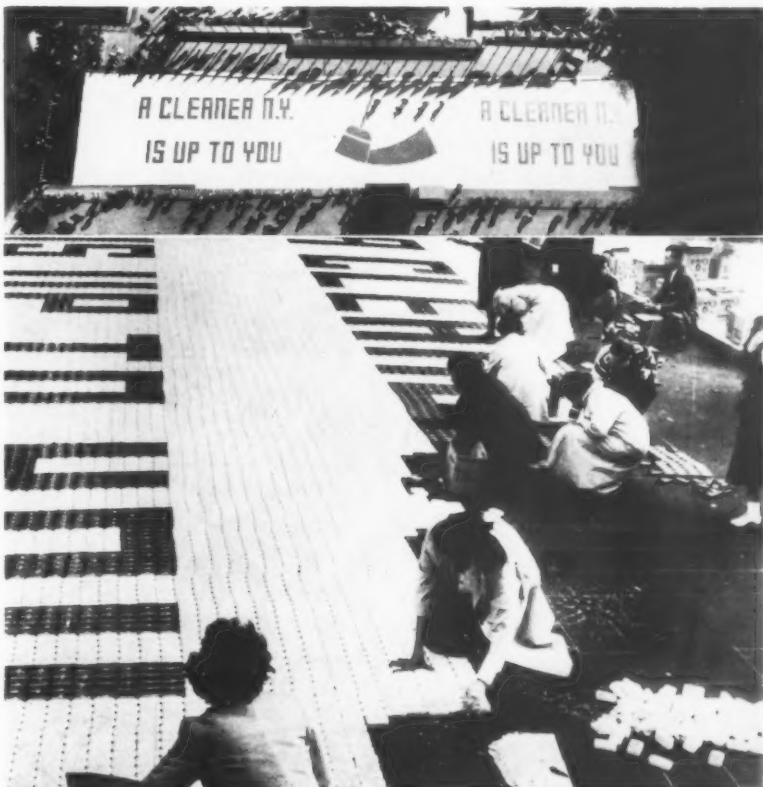
— ★ —

Declare Stock Dividends

American Potash & Chemical Co., New York, recently announced quarterly cash dividends of 25 cents per share on class A and common stocks payable Dec. 15 to stockholders of record Dec. 1, and a stock dividend of three percent payable in common stock on Jan. 9, 1957, to class A and common stockholders of record on Dec. 1.

The company also declared a quarterly dividend of \$1.00 per share on the \$4.00 cumulative preferred stock, series A, payable Dec. 15, to shareholders of record Dec. 15.

P&G's new Pink Camay soap made debut recently as "paving blocks" in Rockefeller Plaza. Dark legend calling for a "Cleaner N. Y." is made of pearl-pink foil wrapped bars, light background of unwrapped bars. Pink Camay features new fragrance.





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Soap Perfuming—Why and How

By F. V. Wells*

THE following paragraphs are an attempt to put into useful perspective the more recent writings of Pickthall, Sfiras and others on the behavior of odorants in soap and to correlate their findings with some practical tests undertaken by the author during the past 12 months.

We all know that many perfumes, perfectly satisfactory in alcoholic solution, are most disappointingly ineffective in soap. Strikingly successful toilet soap perfumes are the exception rather than the rule; and it is far more difficult to arrive at clean-cut types or "themes" in toilet soap perfuming than in most other branches of the perfumer's art. Talented soap perfumers need long memories and, even so, are often obliged to carry out irksome tests with this or that material or blends of different materials, in soap base itself, before they can carry a new assignment to completion. Only one thing can help them to save time, extend their range of experimentation rapidly and, above all, provide a compass to guide them through the wilderness of wasteful effort. That thing is a reliable knowledge of the why and wherefore of the actual reasons for the variable behavior of different materials in the system: odorant/soap/water.

Non-reversible chemical reactions between soap and certain perfumery chemicals, such as those caused by alkaline or ozonide attack or by the formation *in situ* of Schiff bases etc., have already been dealt with by a number of authors, much of whose work was summarized on pages 50-52 of this journal (1) (March, 1955).

Of even greater importance,

partly because its effects are more widespread and partly again, because too little is yet known about it, is the physical chemistry of the subject; or, in other words, the study of soap micelles and the physical manner in which they become associated with added perfumes. It is in this profitable field of speculation that Pickthall has made what I can only describe as a revolutionary contribution, in his paper entitled "An Approach to Soap Perfumery," presented at the German Soap and Oil Congress, 1956. (2)

The phenomenon that first led to Pickthall's theorizing and subsequent experimentation was the all too common one of fading. It is difficult, he thought, to decide whether such loss of odor is due to chemical change, to evaporation from the surface of the soap cake, or to the perfume becoming more effectively "bound" by the soap. Experiments with carbonyl group chemicals — aldehydes and ketones — showed that some, when incorporated in milled soap base in the proportion of one per cent, had virtually lost their odor in a few months. Yet analysis revealed that they were still present in proportions as high as 0.95 per cent. In other words, through a slow process of solubilization, the odorant had finally orientated itself in the micellar soap structure in such a way as to reduce considerably its vapor pressure at the surface.

Pursuing this line of thought, and with the object of discovering a possible relationship be-

tween maximum odor *in soap* and the molecular structure of odorous chemicals, Pickthall started by considering modern theories relating to the physical structure of soap itself. In this, his latest work, he considers that high concentration soap micelles probably possess a laminar appearance rather than the spherical droplet shape earlier postulated by Schulman and Hoar. (3) It is unfortunate that he fails to introduce the point that micellar structure may vary according to the concentration of water present, so that perfumery materials orientated in one way in cake soap are apt to become disarranged and re-orientated (with corresponding if slight variations in odor) in dilute soap solutions or suds formation.

Here it may be mentioned that accurate light-scattering measurements carried out by Trap and Hermans in 1955 (4) prove that certain dilute soap solutions, in the presence of 0.05 M potassium chloride, contain rod-shaped micelles about 1000 Å in length.

There seems little doubt, however, of the general veracity of Pickthall's suppositions: first, that soap consists of probably laminar micelles or leaflets, with the hydrocarbon chains on one side and the hydrophilic groups on the other, each lamina consisting of two such structures, with the hydrocarbon chains in contact; and, secondly, that there are four possible ways in which a perfumery chemical can exist in a soap cake:

**Recent Research Into Behavior of
Perfume Materials in Soap Greatly
Simplifies Task of Soap Perfumer**

* Editor, *Soap, Perfumery & Cosmetics*, London, and consultant perfumer.

"(i) it might be sufficiently water-soluble to remain in the aqueous phase;

(ii) it might be absorbed on the outer surface of the micelle;

(iii) it might be absorbed between the methyl tail groups of the soap molecules; and

(iv) it might become orientated in the micelle, forming a more or less stable complex."

"In case (i)", he adds, "we shall probably be considering chemicals such as phenylethyl alcohol, and their effects in water are already known. In case (ii) one would expect that the perfumery chemical would not be so sheltered as one entering the micelle. In case (iii) it is difficult to anticipate the effect upon odor. Case (iv) is the one which interests us most, as practically all our odorous chemicals possess some degree of polarity."

Polar Interaction

THE strength of the complex depends on interaction between the polar heads of the soap and the chemical and also between the non-polar residues (van der Waals forces.) The "tighter" the bond and the stronger the interaction, the greater is the reduction of odor of the associating chemical. Pickthall adds:

"If we have strong polar interaction but weak van der Waals attraction, the perfumery chemical will be but weakly associated with the soap molecules. If both polar and van der Waals attractions are great, we will have strong complex formation. We can expect strong association between soap and alcohols and phenols, due to hydrogen-bonding. Schulman and Friend have shown the remarkable specificity of complex formation, e.g. cholesterol forms strong complexes with soap, while cholestryl acetate forms no complexes, due to the elimination of hydrogen-bonding. Esters, aldehydes, ketones and ethers will, however, have some degree of association with the soap polar heads due to dipole attraction.

"The nature and position of

the polar group in the perfumery chemical will largely determine the strength of association, but steric hindrance and the presence of double bonds in the non-polar portion will affect the degree of attraction. Thus unsaturation and the structure of the hydrocarbon chain greatly affects the strength of association; stearyl alcohol forms strong complexes with soaps; elaidyl alcohol, the unsaturated *trans* compound, weaker complexes and oleyl alcohol, the unsaturated *cis* isomer, no complexes. The *trans* isomer corresponds to the shape of the saturated hydrocarbon and, therefore, the van der Waals forces with the soap chains are greater than is the case with *cis* isomer. The latter, due to its configuration, is prevented from close adlineation with the soap molecules. It is known that only a limited amount of non-polar oils can be accommodated in the soap micelle, but in the presence of polar molecules this amount is increased. . . .

"In considering the nature

of the non-polar portion of the perfumery material we must also bear in mind that both saturated and unsaturated fatty acids are present in our soap."

Soap Solutions

PICKTHALL'S actual experiments were carried out with dilute soap solutions, so that smelling could be done with the ordinary absorbent slips, but each odorous chemical so tested was later processed, as a control, into soap cakes at the level of one per cent perfume content. Sodium stearate and sodium oleate, as well as the following non-colloidal vehicles, were used for comparison of results: 1. pure alcohol, 2. stearic acid, 3. oleic acid, 4. cetyl alcohol, 5. diethyl phthalate and 6. paraffin wax. (When paraffin wax was employed, very pure cyclohexane was used as the solvent and the perfumery chemical was added as a 10 per cent solution in this solvent.)

Viscosity changes in the soap solution were recorded as a meas-

Table. I Correlation of Viscosity Changes and Strength of Odor of Chemicals in Sodium Oleate Solution

(After Pickthall.)

Perfumery Chemical	Viscosity in Seconds	Strength of Odor
Water (control)	41	—
Sodium oleate, N/10.	57	
Dibenzyl ether	54	Very strong
Eugenyl acetate	62	Very strong
Phenylacetalddehyde	63	Very weak
Amyl cinnamic aldehyde diethyl acetal	63	Very strong
Dipentene	64	Equal strength
Decyl aldehyde	64	Very weak
Citral	65	Weak
Amyl cinnamic aldehyde	65	Weak
Cyclamen aldehyde	65	Equal strength
Citral diethyl acetal	66	Strong
Terpinyl acetate	66	Very strong
Geranyl acetate	67	Very strong
alpha-Ionone	67	Strong
Terpinolene	68	Equal strength
Citronellyl acetate	69	Very strong
Phenylacetalddehyde dimethyl acetal	71	Very strong
Terpineol	71	Equal strength
Vetiverol	71	Equal strength
Methyl eugenol	72	Equal strength
Linalool	72	Equal strength
Isoeugenol	73	Rather weak
Methyl isoeugenol	75	Equal strength
Decyl acetate	75	Equal strength
Geraniol	75	Weak
Methyl nonyl ketone	78	Weak
Santalol	78	Weak
Citronellol	81	Weak
Eugenol	84	Weak
Dimethyl octanol	97	Weak
Decyl alcohol	180	Very weak

Relates to strength of odor in N/10 sodium oleate solution compared with that of similar proportion of odourant incorporated in non-colloidal bases.

Table 2. Behavior of Representative Aldehydes (0.5%) in Milled Toilet Soap

Perfumery Chemical	Odor after:		Discoloration	Comments
	1 month	6 months		
Heptaldehyde	Fatty	Milder	None	Of little interest.
Nonyl aldehyde	Characteristic		None	Useful for top notes.
Lauric aldehyde	V. Good	V. Good	None	Extremely interesting. A beautiful, persistent aldehydic note.
Citral (98/100%)	Good lemony	Good but fades	Slight yellow	Wrapped sample fades less.
Heliotropin	Good heliotrope	Some fading	None	— ditto —
Hydroxycitronellal	Fair, normal odor in soap	Weak blurred	None	Loses strength and character but better wrapped.
Phenylacetaldehyde	Prone to deterioration		Yellow	One sample exhibits rancidity.
Amyl cinnamic aldehyde	Good fatty jasmin	Good	Very slightly yellow	Excellent effect. Persistent.
Cyclamen aldehyde	Good lime-lily	Good	None	Wrapped sample better and fresher.

ure of the degree of association between soap and each perfumery chemical examined.

Pickthall's tabulated findings (Table 1) may be compared with some of the author's results and those of Sfiras, all of which are based on approximately concurrent investigations.

Perfuming Toilet Soap

THE author's hitherto unpublished work was concerned with shelf and user tests of certain aldehydes, acetals, carbinols and their esters, and a few miscellaneous chemicals, incorporated in milled toilet soap base (*vide* Tables 2-4.) Sfiras was similarly concerned with the lasting properties of odorous esters in toilet soap, (5) and his work has the additional merit of containing some very interesting analytical data (Table 5.)

All this recently published work has the merit of increasing

change-in-viscosity technique to determine the actual "availability" of odorants in soap, as a measure of their degree of association with the soap micelle. His findings were checked by the usual factory tests. Sfiras, on the other hand, carried out a series of experiments designed to determine the degree of decomposition of esters in soap, due to saponification with consequent release of titratable free acidity. The distinguished scientific director of Etabls. Roure Bertrand Fils et Justin Dupont begins his paper with the following general statement of the problem:

"The keeping properties of a perfume incorporated in toilet soap, or more exactly of a perfumed soap, are governed by various

Table 3. Behavior of Some Acetals (0.5%) in Milled Toilet Soap

Perfumery Chemical	Odor after:		Discoloration	Comments
	1 week	6 months		
Heptaldehyde dimethyl acetal	Sharp, fatty	Fades somewhat	None	Wrapped samples fade less.
Nonyl aldehyde diethyl acetal	Good aldehydic top-note	Good	None	Interesting.
Lauric aldehyde dimethyl acetal	Freshly "aldehydic"	Still fresh	None	Almost as good as the parent aldehyde.
Citral diethyl acetal	Fresh, developing an elemi-like note		Slight yellow	—
Heliotropin diethyl acetal	Muted heliotropin		None	—
Hydroxycitronellal dimethyl acetal	Fresh, nondescript	Develops a faint jasmin-pomade odor	None	Disappointing.
Phenylacetaldehyde glycerol acetal	Fresh, leafy floral	Fades	None	Not so useful as the dimethyl acetal.

our knowledge of what actually happens to perfume incorporated in soap. Pickthall used the familiar

physico-chemical phenomena, of which the most important are the following:

1. adsorption of perfume by the soap; 2. evaporation of the perfume; 3. autoxidation of perfume and/or soap; 4. the reactivity of soap due to the equilibrium reaction: $\text{RCOONa} + \text{H}_2\text{O} \rightleftharpoons \text{RCOOH} + \text{NaOH}$

Often there is such an interconnection between these different phenomena that it is difficult to see what part is played by each in the achievement of the final result. . . . If we take a perfume composed of such odorous esters as benzyl, linyl and cedryl acetates etc., their

Table 4. Behavior of Some Carbinols and Carbinol Esters (0.5%) in Milled Toilet Soap

Perfumery Chemical	Odor after:		Discoloration	Comments
	1 month	6 months		
Benzyl methyl ethyl carbinol	Lichenous sweet-pea	Faded but fresh	None	Useful background odor.
Benzyl isobutyl carbinol	Citrus-honeyed	ditto	None	— ditto —
Benzyl isopropyl carbinol	Fresh green floral	ditto	None	— ditto —
Benzyl dimethyl carbinyl acetate	Fruity-cachou	Fades somewhat	None	Interesting possibilities especially in wrapped soaps.
Benzyl dimethyl carbinol	Herbal fruity	ditto	None	Interesting background odor.
Benzyl phenyl carbinol	Melon-orris		None	Wrapped samples fade less.

saponification will have a greater opportunity of taking place in moistened rather than in dry soap" (owing to increased hydrolysis.)

Sfiras' experiments were carried out with cakes of dry soap wrapped and allowed to stand for three months; soap and water (50/50) left to stand in Erlenmayers for two months; and soap and water (50/50) heated together for three hours. Each of the soap samples contained two per cent of a certain ester. A further series of experiments involved the direct action of N/2 aqueous NaOH on each of the esters. For a proper appreciation of this work, reference should be made to the original paper. An attempt to summarize Sfiras' findings under the heading of esters, appears in the paragraphs that follow.

At this stage of my report, it is worth recalling the old adage that "essential oils are Nature's compounds;" for to understand the behavior of the more complex oils, resins and composite perfumes, it is necessary in the first place to consider the properties and reactions of the simpler chemical entities of which they are composed. No apology is needed for reintroducing the now familiar arrangement of material under the separate headings of alcohols, aldehydes, esters, ethers, ketones etc., particularly as this is a simple and convenient means of bringing the whole subject effectively up to date.

ALCOHOLS. Although in practice, there may be little to add to what was stated in my previous contribution (1), the findings of Pickthall and, in particular, his comments on the respective merits of the parent alcohol and the derived acetic ester, are extremely interesting:

"The fatty alcohols (he writes) gave very high viscosities and little odor in soap. Unsaturation in the chain resulted in a lower viscosity and better odor performance in soap. Suppression of hydrogen-bonding by the formation of the corresponding acetate resulted in a drastic decrease in viscosity

Table 5. The Saponifying Action of Soap on Odorous Esters (Sfiras)

Ester	Saponifying action of soap in 50 per cent of Hot Water (%)	Action of N/2 aqueous NaOH at 20°-21°C. (%)
Guaiyl acetate	1.6	7.1
Terpinyl acetate	2.5	22.8
iso-Bornyl acetate	2.7	13.3
Cedryl acetate	4.7	6.3
Phenylethyl benzoate	10.6	17.3
Nonyl acetate	11.2	22.6
Linalyl acetate	14.0	14.7
Geranyl acetate	14.7	31.2
Amyl salicylate	21.5	20.7
Methyl benzoate	11.9	95.0
Methyl anthranilate	15.0	101.0
Styrrallyl acetate	19.0	93.0
Phenylethyl acetate	22.9	100.0
Benzyl acetate	41.1	100.0
Cinnamyl acetate	44.2	97.1
Acetyl-eugenol	78.3	101.0

and a greatly increased odor effect in soap. Thus, decyl alcohol gave a viscosity of 180 seconds, little odor in soap and considerable odor in non-colloidal bases. Decyl acetate gave a viscosity reading of only 75 seconds and great strength of odor in both colloidal and non-colloidal bases.

"Aromatic alcohols gave small viscosity increases and their odor effects in soap were somewhat similar to those in other bases.

"Open-chain terpene alcohols gave fairly high viscosities and relatively weak odors in soap. The effect of unsaturation in the chain is of interest. Geraniol gave a viscosity reading of 75 seconds, citronellol 81 seconds and tetrahydrogeraniol (dimethyl octanol) 97 seconds. The position of the hydroxyl group is of importance, linalool giving a lower viscosity than geraniol and an odor performance in soap equal to that in the non-colloidal bases. Terpineol was rather similar in characteristics to linalool.

"Of the sesquiterpene alcohols, santalol gave a fairly high viscosity and performed but indifferently in soap. Vetiverol behaved in a manner similar to terpineol and linalool, i.e. medium viscosity and average odor performance in soap.

"In all cases acetylation resulted in a viscosity lower than that given by the parent alcohol and the

ester gave greatly improved results in soap."

ESTERS. According to Pickthall, the decrease in viscosity exhibited by acetates, as compared with the parent alcohols, was invariably accompanied by an increase in odor. This speaks well of the esters as a class, from the soap perfumer's point of view, although there is obviously wide variation within the class. Sfiras also considers that most of the esters examined by him can be regarded as stable in milled soap itself. Even in his soap/hot water system, most of them stand up pretty well. Though there is considerable dissociation of eugenyl acetate under these latter conditions, for example, one will still tend to get a eugenol effect—though Sfiras does not mention this.

In wrapped, milled soaps all the commonly used esters contributed a useful odor note and revealed practically no tendency to hasten the development of autoxidation.

Jellinek's previously published assertion on the undesirability of terpinyl acetate as a soap odorant (6) is clearly shown to be without foundation in fact. Spencer's recommendation of acetylated, decolorized vetiver oil as a constituent of high-grade toilet soap perfumes (7) is seen to be in ac-

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Classifying Detergents—II

Further qualitative tests for commercial detergents utilize foam depression and refractive index measurements

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In a previous article (1) we described a series of simple qualitative tests to differentiate between various anionic and non-ionic detergents. The present study is concerned with a simple foam depression test by which one can quickly differentiate between the various types of detergents and mixtures of detergents even in the presence of alkaline builders. In addition, refractive index values are presented for a number of non-ionic surface-active agents indicating the potential usefulness of this method for the identification of the various hydrophobic groups commonly used in this type of detergent.

The above tests in conjunction with the previously published (1) qualitative tests have been found very helpful in the analysis of commercial detergent samples.

Foam Depression Tests

THE presence of certain inorganic compounds in a dilute aqueous solution of a surface-active agent is known to stabilize or adversely affect foam of these solutions. For example, calcium or barium salts depress the foam of a soap or anionic detergent solution. With this in mind, aqueous solutions of a variety of inorganic and organic substances were prepared and their effect on the foam height of the various types of surface-active agents was determined. Sev-

eral of these reagents which appeared to give the most satisfactory differentiation between the detergent types were selected and are listed.

Reagents: 1 percent Phenol—Ten grams of c.p. phenol was dissolved in one liter of distilled water. 1 percent Phenol and 2 percent sodium carbonate—Ten grams of c.p. phenol and twenty grams of anhydrous sodium carbonate were dissolved in one liter of distilled water. 5 percent Barium chloride—Fifty grams of barium chloride dihydrate was dissolved in one liter of distilled water. 5 percent Sulfuric acid—Fifty ml. of concentrated sulfuric acid was diluted to one liter with distilled water. 35 percent Formamide—Three hundred and fifty ml. of 99 percent formamide was diluted to one liter with distilled water.

Preparation of Samples: Foam depression tests may be conducted on either the 100% active detergent, built mixtures thereof, or aqueous detergent solutions. Only the approximate percentage of detergent in the mixtures or solutions need be known. A built mixture may also be extracted with ethyl alcohol as described in a preceding paper (1) to obtain the alcohol-soluble surface-active component.

Procedure: Fifty ml. of test solution and fifty mg. (one drop) of concentrated detergent or its

equivalent are placed in a one-hundred ml. glass-stoppered graduated cylinder. If the sample is a powder or solid, a concentrated aqueous solution may be prepared and a quantity equivalent to 50 mg. of surface-active agent is introduced into the test solution. The solution and detergent are thoroughly mixed and the mixture is then shaken vigorously with ten strokes. The foam height, i.e. the distance in ml. from the top of the liquid to the top of the foam, is then read and recorded thirty seconds after shaking. Interpolation of the top of the foam is necessary in some cases.

In order to determine the percentage of foam depression, each sample must be tested in the above manner with 50 ml. of distilled water using approximately 50 mg. of surface-active agent. Some general knowledge may also be gained from this since most nonionic detergents generally give lower values than do anionic or cationic agents while soaps give the highest foam heights in distilled water. On the other hand, pluronics and certain thioethers give very low foam heights in water alone.

Calculation of foam depression is shown on next page.

Foam depression was determined on a number of samples in each classification and average foam depression for each detergent type is listed in Table I. Built deter-

gents were prepared by combining polyphosphates and soda ash with a typical anionic detergent (Ultra-wet, 85% active), a nonionic (Renex 30), a cationic (Hyamine 1622) and a soap (Ivory flakes.) The above-mentioned surface active agents were also used in preparing the mixed detergents in the latter part of Table 1.

Discussion of Results

FROM the foam depression tests recorded in Table 1, it became evident that the surface-active agents could be classified according to type rather quickly. For example, barium chloride solution completely depressed (less than 5 cc of foam after 30 sec.) either an anionic detergent or a soap while phenol solution depressed the nonionic type. Sulfuric acid, phenol and formamide solutions aided in distinguishing a soap from the anionics. The cationics were completely depressed by phenol-sodium carbonate and by the formamide. In practice, the foam depression tests should be carried out with all of the test solutions and depending upon the results obtained as a whole the type of detergent can then be classified. In the case of the built detergents, the values obtained correspond essentially to those obtained for the original detergent concentrates except in the case of the cationics which are not ordinarily used with sodium carbonate.

The foam depression tests with mixtures of two different types of detergents corresponded fairly well to the additive values expected from the individual types. However, in these cases, it is recommended that other qualitative tests, as described in the earlier paper (1), be carried out in conjunction with the foam tests.

Refractive Index Measurements

A RELATIVELY easy method of distinguishing between various nonionic surface-active agents with respect to the different hydrophobic groups is based on

Calculation of foam depression

$$100 - \frac{\text{Foam Height in Test Solution}}{\text{Foam Height in Distilled Water}} \times 100 = \% \text{ Foam Depressed}$$

refractive index measurements. The only requirements are that the detergent be liquid at the temperature at which the measurements are carried out and that they be 100% active. In cases where built mixtures are to be analyzed, an alcohol soluble extract is first made and the solvent must be completely removed leaving a residual oil for refractive index determination.

The refractive index measurements were carried out with a Bausch and Lomb "Abbe-56" refractometer at 35° C. on a number of laboratory preparations as well as on commercial samples of polyoxyethylene nonionic detergents and the values obtained are recorded in Table 2.

Discussion of Results

FROM Table 2, it becomes apparent that the refractive index measurements can be very helpful in the analysis of nonionic detergents in a variety of ways. Where

a single nonionic detergent is present, either in built form or as concentrate, the refractive index measurement can easily distinguish between an alkylphenol and the tridecyl ether types. In some cases, where there is overlapping, such as with the tall oil and alkylphenol types, the qualitative tests previously described (1) are helpful although the refractive index measurement does eliminate other possibilities. In distinguishing a pluronic from the tridecyl ethers, a simple foam test in water is helpful. In all cases, it is imperative to carry out control experiments.

In addition, the refractive index is very helpful in establishing the extent of ethoxylation where the hydrophobic group is known. This is particularly true with aromatic nonionics such as the alkylphenol type where the addition of even a single ethenoxy unit alters the refractive index markedly. Then, too, the rosin acid content

Table 1. Foam Depression Tests on Various Types of Detergents

Detergent Type	Ml. of Foam with Distilled Water	% Foam Depressed ^a				
		1% Phenol	1% Phenol — 2% Sodium Carbonate	5% Sulfuric Acid	5% Barium Chloride	35% Formamide
Anionic	41	0	0	50	100	0
Cationic	42	0	100	50	0	100
Nonionic	36	100	75	0	0	0
Soap	60	50	25	100	100	50
Built Detergents^b						
Anionic	60	0	0	75	100	0
Cationic	40	100 ^c	100	25	0	25
Nonionic	39	100	75	0	0	0
Soap	48	50	50	100	100	0
Detergent Mixtures						
Cationic + Nonionic	50	25	100	25	0	25
Nonionic + Anionic	50	0	50	75	50	0
Anionic + Soap	64	25	25	100	100	25
Nonionic + Soap	45	25	25	100	75	0

^a 0 = no depression based on fifty mg. of sample in fifty ml. of distilled water.
100 = complete depression of foam.

^b In these tests, built detergent mixtures were prepared by premixing twenty parts by weight of detergent with twenty parts of tetradsodium pyrophosphate, twenty parts of sodium tripolyphosphate, thirty-nine parts of soda ash and one part of carboxymethylcellulose.

^c Complete depression was obtained due to the presence of sodium carbonate.

of a polyoxyethylene derivative of tall oil can be estimated by virtue of the large spread in refractive index between a tall oil high rosin acid nonionic (1.4973) to one with practically no rosin acids present (1.4664).

Where known mixtures of nonionic detergents are present, and their individual refractive indices are far enough apart, the proportions of each nonionic can be estimated by refractive index. Or in cases where a known nonionic detergent has been diluted with water, the concentration of the surface-active agent can be determined.

Since Table 2 is rather lengthy, the results of these data have been summarized to show the type of nonionic surface-active agent that might be expected within the various ranges of refractive index with few exceptions. Table 3 illustrates the types of hydrophobic groups which commonly fall within certain refractive index ranges.

Summary

The foam tests and refractive index measurements described herein in conjunction with previously published tests are very helpful in identification of various types

Table 3. Refractive Indices of Various Types of Nonionics

Refractive Index Range	Type of Hydrophobic Group
1.490 — 1.498	Rosin Acid
1.480 — 1.490	Alkylphenol
1.470 — 1.480	Tall Oil, Alkylphenol, Thioalcohol
1.460 — 1.470	Fatty Acid
1.450 — 1.460	Fatty alcohol, Tridecyl Alcohol, Polyoxypropylene

of detergents particularly in mixtures of detergents. In addition, refractive index measurements can be used either for the identification of nonionic type or to determine the extent of ethoxylation where the hydrophobic group is known.

Literature Cited

- Karabinos, J. V., Kapella, G. E. and Bartels, G. E., *Soap & Chem. Spec.* (6) 30, 41 (1954).

Wolf Soap Relocates

Wolf Soap Co., Brooklyn, N. Y., has moved to its new plant at 254 Sheffield Ave., Brooklyn, N. Y., it was announced recently by Joseph Cuccia, president. The new plant, which occupies an area of 5,000 square feet, will enable the firm to increase production of its line of soaps, both liquid and solid, and shampoos.

At the same time, Mr. Cuccia announced the appointment of Louis S. Trowbridge as sales man-

ager. In his new post, Mr. Trowbridge will be responsible for the sales of Wolf's line to jobbers. Mr. Trowbridge formerly was sales manager of Kranich Soap Co., Brooklyn, N. Y., and prior to that had served for 17 years as a sales representative with Colgate-Palmolive Co., New York.

Fungisept Incorporates

Fungisept, Inc., 61 Bennett Village Terrace, Buffalo, N. Y., has been granted a charter of incorporation to manufacture soaps and insecticides, it was announced recently. Capital stock of 100 shares no par value was listed. Directors of the corporation are Gordon S. Mohr, Hamburg, N. Y.; Harry P. Winrib, Kenmore, N. Y.; and Lynn Hartland, Buffalo, N. Y.

New du Pont Cleaning Kit

A new cleaning kit, containing four marble-size capsules of concentrated liquid detergent and a cellulose sponge, has been introduced by E. I. du Pont de Nemours, Inc., Wilmington, Del., it was announced recently. Tradenamed "Nu-Nap," the cleaner is designed for use on rugs, furniture, auto upholstery, wool, cotton and synthetics and is effective in water of any temperature. Retail price is \$1.00.

Table 2. Refractive Index Measurements on Nonionics at 35°C.

Hydrophobic Type	Trade Name	—N _D 35—	Hydrophobic Type	Trade Name	—N _D 35—
Rosin Acid	Hercules "Synthetics A-32"	1.4973	Alkylphenol	Antara's Dincnylphenol + 13.8 ethoxy units	1.4789
Rosin Acid	Monsanto "Serox 110"	1.4950		Hercules "Synthetics B-97"	1.4784
Alkylphenol	Rohm & Haas "Triton WR-1339"	1.4944	Tall Oil	Carbide and Carbon "Te qitol NPX"	1.4772
Rosin Acid	Hercules "Synthetics B-48"	1.4906	Alkylphenol	Antara "Igepal ET conc."	1.4762
Alkylphenol	Octylphenol + 6 ethoxy units	1.4894	Tall Oil	Blockson "Teox 120"	1.4733
Alkylphenol	Rohm and Haas "Triton X-114"	1.4883	Thioalcohol	Sharples "Nonic 261"	1.4738
Alkylphenol	Oronite "Dispersant NI-O"	1.4873	Thioalcohol	Sharples "Nonic 218"	1.4725
Alkylphenol	Nonylphenol + 6.4 ethoxy units	1.4870	Fatty Acid	Atlas "Span 20" (Sorbitan monolaurate)	1.4699
Alkylphenol	Oronite "Dispersant NI-8593"	1.4854	Fatty Acid	Atlas "Tween 21" (Polyoxyethylene Sorbitan monolaurate)	1.4685
Alkylphenol	Nonylphenol + 8 ethoxy units	1.4851	Fatty Acid	Tall Oil (2% Rosin Acids + 13 ethoxy units)	1.4664
Alkylphenol	Antara "Igepal CO-630"	1.4850	Tridecyl alcohol	Tridecyl alcohol + 12 ethoxy units	1.4572
Alkylphenol	Antara "Igepal CA Extra High Conc."	1.4849	Fatty Acid	Lauric Acid + 10 ethoxy units	1.4570
Alkylphenol	Hercules "Synthetics B-79"	1.4849	Tridecyl alcohol	Atlas "Renex 30"	1.4567
Tall Oil	Tall Oil (70% Rosin Acids) + 13.6 ethoxy units	1.4844	Tridecyl alcohol	Nopco "Hyonic 1548"	1.4557
	Rohm and Haas "Triton NE"	1.4838	Fatty Acid	Tridecyl alcohol + 9.1 ethoxy units	1.4553
Alkylphenol	Octylphenol + 11 ethoxy units	1.4834	Tridecyl alcohol	Wyandotte "Pluronic L-64"	1.4548
Alkylphenol	Nonylphenol + 10.8 ethoxy units	1.4834	Tridecyl alcohol	Wyandotte "Pluronic L-44"	1.4545
Alkylphenol	Atlas G-1690	1.4833	Polyoxypropylene	n-Decyl alcohol + 10 ethoxy units	1.4541
Thioether	Sharples "Nonic 259"	1.4823	Polyoxypropylene	Monsanto "Serox AI"	1.4535
Alkylphenol	Oronite "Dispersant NI-W"	1.4812	Fatty alcohol	Tridecyl alcohol + 6.1 ethoxy units	1.4534
Alkylphenol	Rohm and Haas "#1461"	1.4805	Tridecyl alcohol	Lauryl alcohol + 8.1 ethoxy units	1.4522
Alkylphenol	Sharples "Nonic 300"	1.4804	Fatty alcohol	Myristyl alcohol + 7.8 ethoxy units	1.4522
Tall Oil	Atlas "Renex 20" (Approx. 50% Rosin Acids)	1.4798	Tridecyl alcohol	Wyandotte "Pluronic L-62"	1.4518
Tall Oil	Monsanto "Sterox CD" (Approx. 50% Rosin Acids)	1.4797	Fatty alcohol	n-Decyl alcohol + 4.2 ethoxy units	1.4460
Alkylphenol	Oronite "Dispersant NI-8586"	1.4789	Polyoxypropylene		
			Fatty alcohol		

New Thickener for Glycerine

Improved viscosity through the use of "Carbopol 934" suggests new applications for glycerine and offers improvement of many present glycerine applications

By Louis Cohen

B. F. Goodrich Chemical Co.
Avon Lake (O.) Experimental Station

DUE to its unique combination of properties glycerine finds extensive use today, as in the past, in a wide range of products. Indeed, it would be difficult to name at random a handful of applications which do not in some way involve the use of glycerine. Here are some of the chief properties which are combined in glycerine: it is a good solvent, humectant, emollient, vehicle, sweetening agent, lubricant, softening agent, and it is non toxic. (1)

The ability to impart body to formulations is one attribute of glycerine which is good cause for a great many applications. Many of these are presently formulated with additional thickeners (such as the natural gums, glue, and starch) to form pastes, salves, or merely to increase the "body" over that which is imparted by glycerine alone.

Although this single property (viscosity) and its resultant commercialization cannot be properly isolated from the other properties of glycerine in viewing improved or new applications, it is the premise taken in this paper that a new improved means of furthering the bodying ability of glycerine in formulations (in combination with the other properties characteristic of glycerine) will suggest new applications of glycerine and offer an improvement for many of the existing ones.

The following discussion and data concerning the role of "Carbopol 934" in glycerine is believed to be unique compared with exist-

ing systems for the control of glycerine viscosity. So much so, in fact, as to warrant the full consideration of all those involved in the application of higher viscosity glycerine formulations.

Suggestions which are obvious from a consideration of the present applications of glycerine (literature survey) and the properties of "Carbopol 934" in glycerine are contained. It is hoped that these may be a starting point or stimulation for immediate and future work in the direction of improved and new glycerine applications.

"Carbopol" Background

CARBOPOL 934** is the product of extended research and development carried out by teams of workers at the B. F. Goodrich Chemical Company research center and Avon Lake experimental station.

It is a tailor-made hydrophilic colloid designed originally as a very efficient thickener for water and water containing formulations. "Carbopol 934" is a high molecular weight polymer containing a large percentage of carboxyl groups. It can be regarded as a carboxylic vinyl polymer and is supplied as a finely divided white powder.

In water it is readily dispersed with mechanical action resulting in a low viscosity, cloudy, acid "solution." When neutralized

subsequently with a wide variety of bases (sodium hydroxide, ammonium hydroxide, triethanolamine, etc.) in the pH range of 5 to 10, a clear stable gel immediately forms which has high viscosity characteristics and yield value.

Although it is entirely man made, it far exceeds in thickening ability the variety of known complex hydrophilic colloids (chiefly polysaccharides) found in plants and seaweed.

As little as one-half of one percent of the polymer, when dispersed and neutralized in water, results in a viscosity of approximately 10,000 Brookfield (20 rpm) centipoises which can be visualized as just barely nonpourable although very easily handled.

Some of the more interesting properties of "Carbopol 934" and its water mucilages which have been carefully tested are the following:

1. Since it is synthetically produced, the purity and product uniformity are reproducibly controlled.
2. It is very highly resistant to bacterial and fungal degradation.
3. High viscosities are obtained over a wide pH range.
4. The highest viscosities are obtainable at low concentrations as compared with any other known marketed product.
5. All toxicity experience to date is favorable. Its use has been cleared as a compounding ingredient for several oral drugs.
6. Viscosities are very stable to temperature.

* Supplied by the B. F. Goodrich Chemical Co., Cleveland 15, Ohio. U. S. and foreign patents applied for.

7. It is compatible with a wide variety of those materials frequently used in pharmaceutical and cosmetic formulations.
8. The viscosity is very stable to long periods of aging (i.e., no hydrolysis or similar break-down occurs with aging).

The mechanisms responsible for the very high viscosities obtained are a combination of solvation and electrical charge repulsions within the molecule. Since the latter is the chief mechanism, ionic materials added to a Carbopol thickened system produces cations which are attracted to and surround the negative charges on the molecule. The rigid electrical repulsion within the molecule is thereby reduced resulting in a lowering of viscosity. For this reason, an excess of ionic materials in a formulation must be avoided unless the concentration of "Carbopol 934" is increased to offset the loss in optimum viscosity produced by the cations.

Since it was officially introduced for commercial usage in 1954, the unique water thickening ability of "Carbopol 934" at low concentrations has been increasingly recognized in the field of cosmetics, pharmaceuticals, and specialty items. Papers have been recently published in the scientific and practical editions of the *American Pharmaceutical Association Journal* (2,

3) describing interesting applications of this material in these fields. The list of users of "Carbopol 934" as a water thickening agent is steadily growing.

Within the last six months, the writer has discovered that "Carbopol 934" is an extremely effective thickener for glycerine alone and as one would therefore expect, mixtures of glycerine and water. The mechanisms and neutralization characteristics are very similar to water systems but the viscosities obtained are much higher with a given amount of "Carbopol 934" in glycerine than in water. The following sections represent the development work done thus far in the new system of glycerine thickened with "Carbopol 934."

Preparation and Properties

Preparation of Solution: To prepare a solution of "Carbopol 934" in glycerine, it is first necessary to disperse the acid polymer thoroughly in the glycerine. This is somewhat more difficult with glycerine than is experienced with water due to the additional work required to mix the initially more viscous glycerine. However, "Carbopol 934" can be readily dissolved in glycerine by adding the Carbopol while mixing the glycerine with a high shear Eppenbach homogenizer or equivalent type mixer for a

period of time to insure no lumps of unswelled particles. The application of heat greatly aids the mixing since the viscosity of the glycerine is lowered by heating allowing more mechanical action with a given mixer.

A one percent solution of "Carbopol 934" in glycerine prepared in this way has a pH of approximately 3.5 and is only slightly more viscous than glycerine alone. The acid solution can then be neutralized with a choice of bases (sodium hydroxide, ammonium hydroxide, triethanolamine, etc.) to the optimum pH range of 6 to 9 resulting in a crystal clear, smooth, extremely thick glycerine.

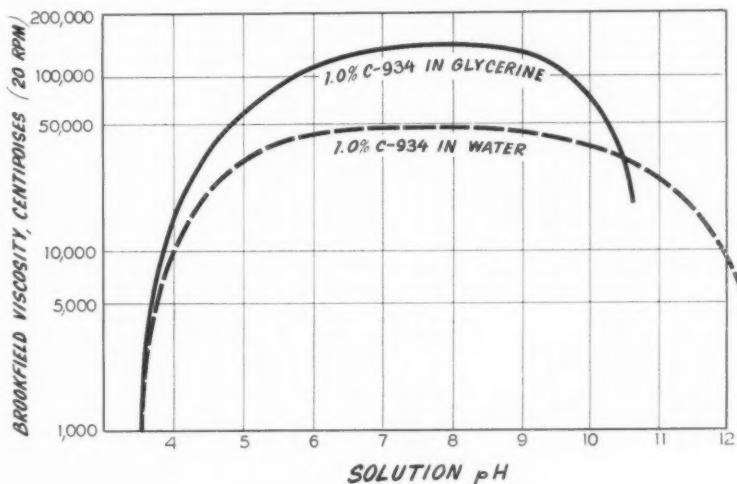
There is the choice of neutralizing in this way or by incorporating the unneutralized "Carbopol 934" — glycerine into a desired formulation containing the neutralizing base. Due to the easily pourable nature of the unneutralized solution there would be the advantage of easy handling and incorporation into the formulation if the neutralizing agent is not added directly to the Carbopol-glycerine solution.

There would be other occasions where it would be necessary to neutralize the Carbopol-glycerine acid solution directly (e.g., where glycerine is the only solvent used). In either case, the type of mixing used in the neutralizing phase is important. As distinct from the high shear mixing used to disperse the acid Carbopol, the neutralizing step should employ a slow speed paddle type mixer producing a folding action. In this way, the entrapment of air bubbles is avoided. Since the solution becomes extremely thick immediately upon neutralization, any air bubbles present due to high speed mixing during neutralization would be difficult to remove.

There is still another method for preparing a neutralized solution of "Carbopol 934" in glycerine directly with a minimum of mixing. This employs the use of an alcohol slurry of the sodium salt of "Carbopol 934." The latter takes ad-

FIG. 1

THE pH VERSUS VISCOSITY OF CARBOPOL-934 IN WATER AND IN GLYCERINE

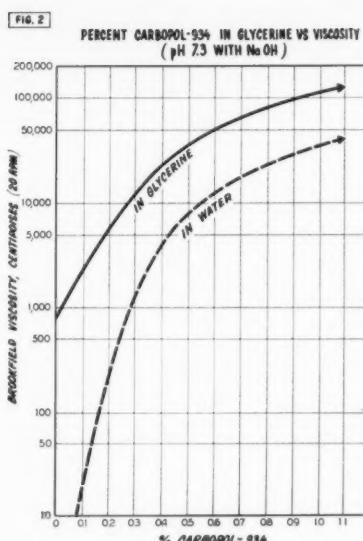


vantage of the fact that although acid Carbopol is soluble in alcohol (methyl or ethyl), the sodium salt is completely insoluble in aqueous alcohol solutions containing over 36 percent alcohol. The salt slurry is prepared (up to 25 percent t.s. sodium salt of "Carbopol 934") by adding acid "Carbopol 934" (as supplied) to an alcoholic caustic solution containing an amount of caustic so as to result in sodium salt of the pH desired.

Using an alcohol slurry of neutralized Carbopol, as high as a four percent solution of the salt in glycerine was rather quickly prepared in the laboratory. The slurry was added to glycerine at 150°F., resulting in the desired thickening with a minimum of mixing using a medium speed propeller mixer.

Viscosity vs. pH: The relationship between pH and viscosity of a 1.0 percent solution of "Carbopol 934" in glycerine is depicted in Figure 1. The data were determined by measuring the pH and Brookfield (20 rpm) viscosity with various increment additions of concentrated sodium hydroxide. A comparison between the curves for glycerine and for water both thickened with Carbopol shows a similarity in general viscosity stability over a rather wide pH range. Optimum viscosity is obtained in glycerine at a pH range of 6 to 9 but appreciable viscosities are produced throughout the entire range of 4.5 to 10.5. Water shows a somewhat wider optimum pH range being from 5.5 to 10.0. (All viscosities were measured at 27°C. unless otherwise specified.)

Viscosity vs. Concentration: Figure 2 shows the Brookfield (20 rpm) viscosities for various concentrations of "Carbopol 934" neutralized with sodium hydroxide to a pH of 7.3 in glycerine and in water. The viscosities produced in glycerine at the low "Carbopol 934" concentration range of 0.1 to 1.0 percent shown are indeed phenomenal. Throughout the entire concentration range shown, the amount of "Carbopol 934" required in

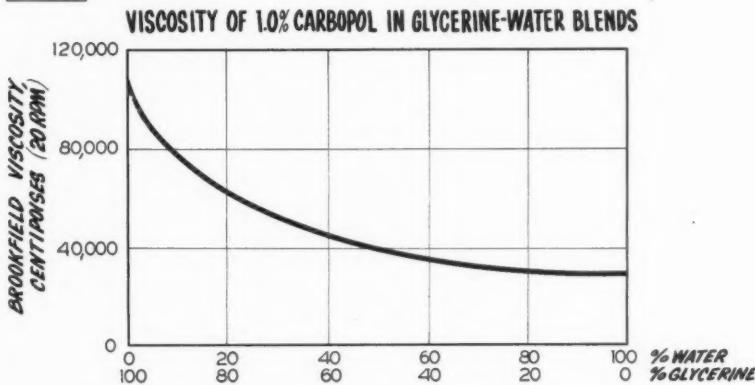


glycerine to attain a given viscosity is no more than one-half of that required in water. Added to this, is the fact that data are available* showing "Carbopol 934" to be far more efficient in producing high viscosities in water at low concentrations than other available thickeners. It is expected that a similar superiority of thickening efficiency exists for "Carbopol 934" in glycerine although this point has not as yet been thoroughly studied.

The Brookfield viscosities plotted logarithmically in Figure 2 can be roughly visualized as ranging from the viscosity of honey (at 0.25 percent "Carbopol 934" in glycerine), to that of vaseline (at a concentration of 1.0 percent Carbopol in glycerine).

* Upon request from the B. F. Goodrich Chemical Co., Cleveland 15, Ohio.

FIG. 3



Since many applications of glycerine involve a combination of glycerine and water, the viscosities produced by 1.0 percent "Carbopol 934" in the complete range of blends of glycerine and water has been determined and shown in Figure 3. As is true with unthickened mixtures of glycerine and water, the greatest reduction in viscosity occurs with the first 10 to 20 percent addition of water to glycerine after which the rate of viscosity loss with water addition is less noticeable.

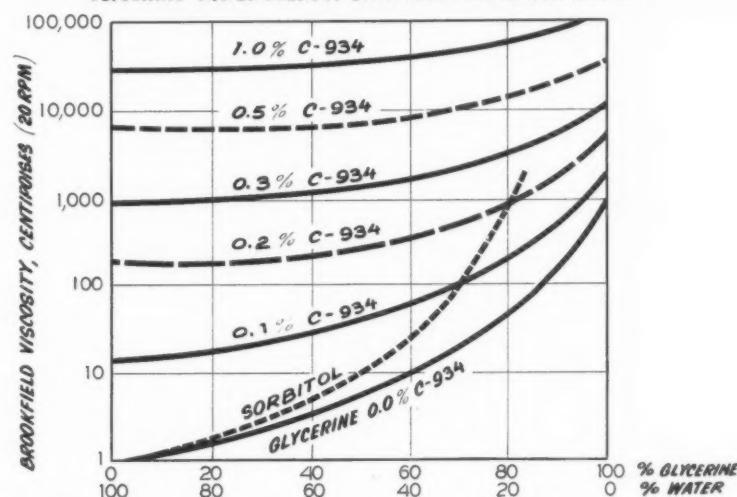
Although each of the conditioning agents employed in the fields of cosmetics and pharmaceuticals have their own particular merits and demerits, the importance of the relatively minor viscosity differences in water blends between the different compounds is illustrated in the following example.

The relative ability to impart "body" to tonics, syrups, and elixirs by sorbitol, glycerine, and propylene glycol have been illustrated in an advertisement which recently appeared (4). The viscosity of the three polyhydric alcohols in combination with various proportions of water revealed that sorbitol produces slightly higher viscosities than glycerine in all blends with water. The importance of body in tonics, etc., is attributed to creating "a more soothing 'feel' in the oral passages and improved palatability."

Figure 4 illustrates the effect that as little as 0.1 or 0.2 percent

FIG. 4

VISCOSEITY OF VARIOUS CONCENTRATIONS OF CARBOPOL-934 IN GLYCERINE-WATER BLENDS. SORBITOL IN WATER COMPARISON



Carbopol can have when dissolved in glycerine-water blends on the viscosity relationships.

The Effect of Temperatures on the Viscosity of "Carbopol 934"

Thickened Glycerine: Due to the extremely small effect of temperature on the viscosity of "Carbopol 934" water solutions, it was thought that possibly the same property would be true of "Carbopol 934" thickened glycerine. There are many lubrication applications employing expensive silicones due to their relatively unaffected viscosities at wide temperature variations.

Figure 5 shows, however, that the effect of temperature on the viscosity of one percent solutions of "Carbopol 934" in glycerine is much more severe than is the case with water mucilages. It is seen that the curve for thickened gly-

cerine although much higher in viscosity, parallels the curve for pure glycerine vs. temperature and may therefore be a general property of glycerine.

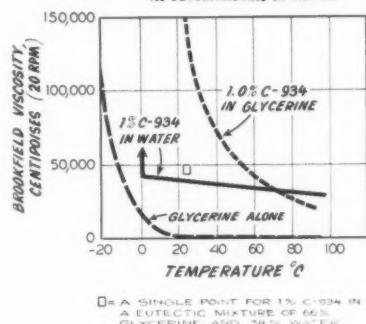
The effect of the temperature sensitivity of a mixture of glycerine and water will be discussed later in connection with the use of "Carbopol 934" thickened glycerine in lubrication.

Rheology of "Carbopol 934"

Thickened Glycerine: Although the Brookfield single measurement viscosity (which has been used throughout this paper for relative comparisons of viscosities produced with "Carbopol 934") has considerable practical value, there are instances where a more complete interpretation of rheological properties is desirable. For example the nature of the flow properties produced by "Carbopol 934" in water and glycerine shows a non-Newtonian reduction in measured viscosities with increased shearing rate. This reduction in measured viscosity is not permanent but immediately increases to the former value when the shearing rate is decreased. Extremely high yield values are also characteristic of "Carbopol 934" thickening which cannot be shown with the conventional single point Brookfield viscosity measurement.

FIG. 5

THE EFFECT OF TEMPERATURE ON THE VISCOSITY OF A 1.0% CARBOPOL SOL. IN GLYCERINE AND IN WATER



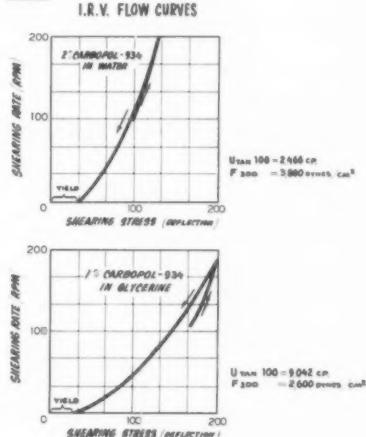
A series of Brookfield equations have been developed by a group of co-workers at the B. F. Goodrich Chemical Avon Lake experimental station. These have very recently been published (5) and allow the determination of yield value and corrected viscosities throughout a range of shear rate using the commonly used Brookfield viscometer. These values for a 1.0 percent solution of "Carbopol 934" in glycerine and in water are shown in Table II (Appendix).

A more complete picture of flow properties of Carbopol solutions in glycerine and in water has also been determined with the aid of the Interchemical rotation viscometer. This consists of plotting the shearing stress (or resistance to flow measured by deflection against a spring) versus the shearing rate (or spindle speed) starting at 100 rpm, ascending in integers to 200 rpm and then descending in integers down to 10 rpm noting the instrument deflection at each change in shear rate. When these values are plotted, a pictorial diagram is obtained giving the resistance to shear at various shear rates shown in Figure 6.

The method of plotting the curve with shear rates increased and then decreased (giving both an "up" and a "down" curve) indicates the effect of past history in the resistance to flow. The viscosity

(Turn to Page 172)

FIG. 6



Control of

Bacterial Spoilage of Emulsion Oils

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Disadvantages

THE procedures for testing bacterial inhibitors in cutting oils discussed in the previous installment had several disadvantages: 1) studies of inhibition were not carried out for periods long enough to determine the duration of effectiveness of the inhibitor, 2) the testing equipment was too complex for a study of large numbers of inhibitors, 3) no consideration was given to the bacterial growth phase at the time of addition of the inhibitor. Growth is rapid during the first few days in freshly inoculated oil, whereas, in older samples, such as have been used, growth is not abundant. In several instances, the experiments were not designed to indicate reduced growth but were based on complete inhibition. Pivnick and Fabian (10) in using the methylene blue screening test did not take Zobell's (19) report into consideration that organisms utilizing hydrocarbons do not necessarily reduce methylene blue. Most of these disadvantages can be over-

Part II

come in future research work.

These procedures have several disadvantages which are very difficult to overcome. It is not possible to duplicate industrial conditions in the laboratory. Contaminated emulsion can be employed for inoculation, but the range of inoculum or the effect of continuous or intermittent inoculation cannot be duplicated. Laboratory methods cannot duplicate the changing environmental conditions such as the aeration during use, anaerobic conditions during periods of inactivity, the higher temperatures in the collection sumps and the mass effect in the main storage tank. In laboratory experiments ecological progression is largely ignored. Isolates as pure cultures seldom grow as expected, the dominant type of organisms found in the spoiled emulsion may not be the type that started the spoilage. The effects of selective elimination under conditions of continuous

or even intermittent inoculation usually are in no way evaluated. Biological competition and symbiosis are ignored.

Laboratory studies give only an indication of potential use of antibacterial agents in emulsion oils. For this reason compounds which are found to be effective bacterial inhibitors in laboratory studies should not be used on a wide scale until they have been studied experimentally under actual industrial conditions.

An additional important factor to remember is that a bacterial inhibitor may be effective in one emulsion and completely ineffective in another. For example, Pivnick and Fabian (10) using a different emulsion from the one studied by Wheeler and Bennett (18) found that 1,3-dichloro-5,5-dimethyl hydantoin and 2,4,6-trichlorophenol was ineffective. These compounds, were reported to be very effective by Wheeler and Bennett (18). Each formulation of cutting emulsion must be studied in-

Table I. Compounds That Are Effective Against Aerobic Microorganisms in Emulsion Oils

Compound	Concentration ppm.	Reference	Compound	Concentration ppm.	Reference
Amyl resorcinol	1000	Pivnick & Fabian ¹⁰	Isobutyl resorcinol	1000	Pivnick & Fabian ¹⁰
Azochloramide	100	Pivnick & Fabian ¹⁰	Mercuric chloride	100	Pivnick & Fabian ¹⁰
Bis (3,5,6-trichloro-2-hydroxyphenyl) methane	1000	Pivnick & Fabian ¹⁰	Nitromersol	500	Pivnick & Fabian ¹⁰
Bis (3,5,6-trichloro-2-hydroxyphenyl) methane	100	Pivnick & Fabian ¹⁰	Octyl resorcinol	1000	Pivnick & Fabian ¹⁰
Chloramine T	500	Pivnick & Fabian ¹⁰	o-Phenylphenate	1000	Westveer ¹⁸
p-Chloro-m cresol	500	Pivnick & Fabian ¹⁰	Phenyl mercuric oleate	50	Pivnick & Fabian ¹⁰
Cobalt chloride, nitrate, phosphate, sulfate, acetate, and naphthenate	1000	Pivnick & Fabian ¹⁰	Resorcinol	10,000	Lee & Chandler ⁸
Copper naphthenate	250	Pivnick & Fabian ¹⁰	Sulfanilamide	1000	Pivnick & Fabian ¹⁰
Dialdehyde	1000	Wheeler & Bennett ¹⁸	2,3,4,6-Tetrachlorophenate, sodium salt	1000	Westveer ¹⁰
Dichloramine B	500	Pivnick & Fabian ¹⁰	2,2'-Thiobis (3,4,6-trichlorophenol)	1000	Wheeler & Bennett ¹⁸
1,3-Dichloro-5,5-dimethyl hydantoin	1000	Wheeler & Bennett ¹⁸	2,4,5-Trichlorophenol	1000	Wheeler & Bennett ¹⁸
p-Hydroxyphenyl mercuric chloride	50	Pivnick & Fabian ¹⁰	2,4,5-Trichlorophenol sodium salt	1000	Pivnick & Fabian ¹⁰
			2,4,6-Trichlorophenol	1000	Wheeler & Bennett ¹⁸
			Tris (hydroxymethyl) nitromethane	1000	Wheeler & Bennett ¹⁸

Table II.
Compounds That Are Ineffective Against Aerobic Microorganisms in Emulsion Oils

Compound	Concentration ppm.	Reference	Compound	Concentration ppm.	Reference
p-Acetyl amino benzaldehyde thiosemicarbazone	1000	Bennett ²	Copper protein	1000	Bennett ²
Acridine orange	1000	Bennett ²	p-Cresyl benzoate	1000	Pivnick & Fabian ¹⁰
Acridine red	1000	Bennett ²	Decane aldehyde	1000	Bennett ²
Acridine yellow	1000	Bennett ²	Dehydroabietylamine	1000	Bennett ²
Acriflavine	1500	Lee & Chandler ⁶	Dehydroabietylamine acetate monoethanol	1000	Bennett ²
Acriflavine	1000	Bennett ²	Bis phenol compound	1000	Bennett ²
Acriflavine	800	Lee & Chandler ⁶	Bismuth subiodate	1000	Bennett ²
Acriflavine HCl	1000	Bennett ²	Boric acid	....	Lee & Chandler ⁶
Acritene chloride	1000	Bennett ²	2-Bromo-4-phenylphenol	1000	Pivnick & Fabian ¹⁰
Acrylonitrile	1000	Bennett ²	n-Butyl aldehyde	1000	Bennett ²
alpha Alamine	1000	Pivnick & Fabian ¹⁰	n-Butyl parahydroxybenzoate	1000	Bennett ²
Alkylated phenolic compound	1000	Bennett ²	dl Camphor	1000	Bennett ²
Alkyl ammonium chloride	1000	Bennett ²	Carbol fuchsins	1000	Bennett ²
Alkyl dimethyl benzyl ammonium chloride	1000	Wheeler & Bennett ¹⁸	Cetyl dimethyl benzyl ammonium chloride	1000	Wheeler & Bennett ¹⁸
Alkyl quaternary ammonium chloride, di-fatty	1000	Bennett ²	Cetyl methylpiperidinium bromide	1000	Wheeler & Bennett ¹⁸
Alkyl phenoxy polyoxyethylene ethanol	1000	Wheeler & Bennett ¹⁸	Cetyl trimethyl ammonium bromide	1000	Wheeler & Bennett ¹⁸
Alkyl-n-propylene-diamine-pentachlorophenate, zinc salt	1000	Bennett ²	Chloramine-T	1000	Bennett ²
Alkyl trimethyl ammonium chloride	1000	Wheeler & Bennett ¹⁸	Chlorinated phenols	1000	Bennett ²
Alkylamine-ortho-phenylphenate, sodium salt	1000	Bennett ²	o-Chlorobenzotrifluoride	1000	Bennett ²
Alkylamine-ortho-phenylphenate, copper salt	1000	Bennett ²	p-Chlorobenzotrifluoride	1000	Bennett ²
Alkylamine-ortho-phenylphenate, zinc salt	1000	Bennett ²	5-Chloro 7 chloro-5, 7 dichloro-8-hydroxy quinoline	1000	Bennett ²
Amine C	1000	Bennett ²	p-Chlorophenyl-p-chlorobenzene-sulfonate	1000	Bennett ²
Amine O	1000	Bennett ²	4-Chloro-3-methylphenol	1000	Bennett ²
p-Aminobenzoic acid	1000	Bennett ²	2-Chloro-4-phenylphenol	1000	Pivnick & Fabian ¹⁰
2-Amino-1,4-naphthaquinone	1000	Bennett ²	Dehydroacetic acid	1000	Pivnick & Fabian ¹⁰
Aniline silicofluoride	1000	Bennett ²	Dialdehyde	1000	Bennett ²
Armac C	1000	Bennett ²	3,6-Diaminoacridine sulfate	1000	Bennett ²
p-Arsenic acid	1000	Bennett ²	Diamino-acridinium monohydrogen sulfate	1000	Bennett ²
Benzalkonium chloride	1000	Wheeler & Bennett ¹⁸	Dibenzylamine	1000	Bennett ²
Benzotrifluoride	1000	Bennett ²	Dibutyl amine silicofluoride	1000	Bennett ²
Benzoyl peroxide	1000	Pivnick & Fabian ¹⁰	1,3-Dichlorobenzene	1000	Bennett ²
o-Benzyl-p-chlorophenol	1000	Pivnick & Fabian ¹⁰	p-Dichlorobenzene	1000	Bennett ²
2,2'-Benzylidenebis (6-bromo-4-chlorophenol)	1000	Wheeler & Bennett ¹⁸	4,4 Dichlorobenzophenone	1000	Pivnick & Fabian ¹⁰
o-Benzylparachlorophenol	1000	Bennett ²	1,3 Dichloro-5, 5-dimethyl hydantoin	1000	Pivnick & Fabian ¹⁰
Benzyl phenyl dimethyl ammonium chloride	1000	Wheeler & Bennett ¹⁸	Dihydroxy dichlorodiphenyl methane	1000	Bennett ²
Bis-2-ethylhexyl amine silicofluoride	1000	Bennett ²	Disobutyl ketone	1000	Bennett ²
4-Chloro-2-phenylphenol and 6-chloro-2-phenylphenol, mixture	1000	Pivnick & Fabian ¹⁰	Dimethyl dithiocarbamic acid and 2-mercaptopbenzothiazole, sodium salts	1000	Wheeler & Bennett ¹⁸
4-and 6-Chloro-2-phenylphenol	1000	Bennett ²	Dinitro-o-cyclohexylphenol, dicyclohexylamine salt	1000	Bennett ²
2-Chlorophenyl phenate, potassium salt, sodium salt sulfonated glyceryl tricinoleate, and isopropyl alcohol	1000	Wheeler & Bennett ¹⁸	2,4-Dinitrophenol	1000	Bennett ²
4-Chloro-resorcinol	1000	Bennett ²	Dinonyl phenol	1000	Pivnick & Fabian ¹⁰
N-Chlorosuccinimide	1000	Pivnick & Fabian ¹⁰	2,6-Di-tertiary-butyl-para-cresol	1000	Bennett ²
p-Chloro-m-xylene	1000	Pivnick & Fabian ¹⁰	Dodecylamine	1000	Pivnick & Fabian ¹⁰
Coal tar disinfectants	....	Lee & Chandler ⁶	Dodecylamine lactate and dodecylamine salicylate mixture	1000	Bennett ²
Coal tar oils, soap cresylic acids	1000	Wheeler & Bennett ¹⁸	Dodecyl phenol	1000	Pivnick & Fabian ¹⁰
Cobalt carbonate	1000	Pivnick & Fabian ¹⁰	Duomeen S	1000	Bennett ²
Cobalt linolate	1000	Pivnick & Fabian ¹⁰	Duomeen C	1000	Bennett ²
Copper-8-quinolate	1000	Bennett ²	Duomeen S	1000	Bennett ²
Copper-8-hydroxy quinolinolate	1000	Bennett ²	Duomeen T	1000	Bennett ²
Copper phenylsalicylate	1000	Bennett ²	Duomeen TDO	1000	Bennett ²

Table II. (Continued)
Compounds That Are Ineffective Against Aerobic Microorganisms in Emulsion Oils

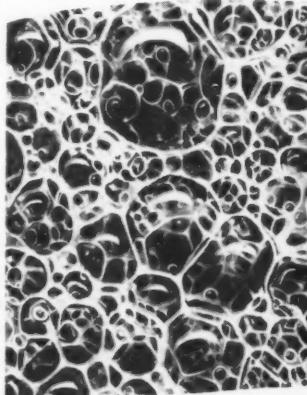
Compound	Concentration ppm.	Reference	Compound	Concentration ppm.	Reference
Ethyl parahydroxy-benzate	1000	Bennett ²	Pentaerythritol di-n-butylal	1000	Pivnick & Fabian ¹⁰
2-Ethyl-3-propyl acrolein	1000	Bennett ²	Pentaerythritol diformal	1000	Pivnick & Fabian ¹⁰
2,2'-Ethylenedibis (4,6-dichlorophenol)	1000	Wheeler & Bennett ¹⁸	Pentaerythritol dipropional	1000	Pivnick & Fabian ¹⁰
Ferric dimethylthiocarbamate	1000	Bennett ²	alpha Phenyl acetamide	1000	Bennett ²
Gentian violet	1000	Bennett ²	Phenylacetic acid	1000	Bennett ²
Hexachlorocyclopentadiene	1000	Bennett ²	Phenylacetone nitrile	1000	Bennett ²
Hexadecanoic acid	1000	Bennett ²	o-Phenylphenol, sodium salt	1000	Pivnick & Fabian ¹⁰
Hexyl resorcinol	1000	Wheeler & Bennett ¹⁸	o-Phenylphenol	1000	Wheeler & Bennett ¹⁸
4N-Hexyl resorcinol	1000	Bennett ²	Pine oil, and potassium chlorophenyl phenate	1000	Wheeler & Bennett ¹⁸
Hexylene glycol	1000	Pivnick & Fabian ¹⁰	Phosphine GN Conc.	1000	Bennett ²
p-Hydroxybenzoic acid	1000	Bennett ²	Potassium iodate	1000	Bennett ²
3-Indoleacetic acid	1000	Bennett ²	Potassium ricinoleate, orthohydroxy diphenyl and alcohol	1000	Wheeler & Bennett ¹⁸
Iodine and alcohol solution	....	Lee & Chandler ⁶	Potassium salicylate	1000	Pivnick & Fabian ¹⁰
Iodoacetic acid	1000	Bennett ²	Primary aliphatic amine		
Iodoform	1000	Bennett ²	Primene JM-T	1000	Bennett ²
Isopropyl alcohol, pine oil, and orthobenzyl-parachlorophenol	1000	Wheeler & Bennett ¹⁸	Primary aliphatic amine		
Lauroyl sarcosine	1000	Bennett ²	Karathane WD	1000	Bennett ²
Lauryl isoquinolinium bromide	1000	Bennett ²	Primary aliphatic amines		
Lauryl dimethyl benzyl ammonium chloride	1000	Wheeler & Bennett ¹⁸	Triton C-F-10	1000	Bennett ²
Malonic acid	1000	Pivnick & Fabian ¹⁰	Primary aliphatic amine		
Methyl-p-hydroxy benzoate	1000	Pivnick & Fabian ¹⁰	Primene-JM-T	1000	Bennett ²
Mercaptobenzothiazole, sodium salt	1000	Bennett ²	Quaternary C	1000	Bennett ²
Mercaptosuccinic acid	1000	Bennett ²	Quaternary O	1000	Bennett ²
Mercuric chloride	1000	Bennett ²	Resorcinol	1000	Bennett ²
Mercuric naphthenate	1000	Bennett ²	Resorcinol diacetate	1000	Bennett ²
Methoxychlor oil	1000	Bennett ²	Resorcinol dibenzate	1000	Bennett ²
2,2'-Methylenebis (6-bromo-4-chlorophenol)	1000	Wheeler & Bennett ¹⁸	Rcsin amine silicofluoride	1000	Bennett ²
2,2'-Methylenebis (6-bromo-4-methylphenol)	1000	Bennett ²	Sapamine	1000	Wheeler & Bennett ¹⁸
2,2'-Methylenebis (4-chlorophenol)	1000	Wheeler & Bennett ¹⁸	Sapamine MS	1000	Bennett ²
2,2'-Methylenebis (4-chloro-6-methylphenol)	1000	Wheeler & Bennett ¹⁸	Sapamine OC	1000	Bennett ²
2,2'-Methylenebis (4,6-dibromophenol)	1000	Wheeler & Bennett ¹⁸	Sapamine WL	1000	Bennett ²
2,2'-Methylenebis (4,6-dichlorophenol)	1000	Wheeler & Bennett ¹⁸	Sodium dimethyl dithiocarbamate	1000	Bennett ²
2,2'-Methylenebis (3,4,6-trichlorophenol)	1000	Wheeler & Bennett ¹⁸	Sodium hippurate	1000	Pivnick & Fabian ¹⁰
Methylenebis chlorophenols, mixture	1000	Bennett ²	Sodium laurate	1000	Pivnick & Fabian ¹⁰
Methyl parahydroxybenzoate	1000	Bennett ²	Sodium oleate	1000	Pivnick & Fabian ¹⁰
5-Methyl-2-thiouracil	1000	Bennett ²	Sodium tetraborate	1000	Pivnick & Fabian ¹⁰
Mono-tert-butyl-meta-cresol	1000	Bennett ²	Scbic acid	1000	Pivnick & Fabian ¹⁰
Morpholine silicofluoride	1000	Bennett ²	Streptomycin sulfate	1000	Bennett ²
Mycifradin sulfate (neomycin sulfate)	1000	Bennett ²	Soya trimethyl and dicoco dimethyl ammonium chloride	1000	Wheeler & Bennett ¹⁸
Myristyl pyridinium chloride	1000	Wheeler & Bennett ¹⁸	Stearyl sapamine base	1000	Bennett ²
p-Nitrophenol, sodium salt	1000	Bennett ²	Stearoyl sarcosine	1000	Bennett ²
Nonyl phenol	1000	Pivnick & Fabian ¹⁰	Sulfadiazine	1000	Pivnick & Fabian ¹⁰
Octenyl succinic acid anhydride	1000	Bennett ²	Sulfaguanidine	1000	Pivnick & Fabian ¹⁰
Octyl phenol	1000	Pivnick & Fabian ¹⁰	Sulfamerazine	1000	Pivnick & Fabian ¹⁰
Oleyl sapamine base	1000	Wheeler & Bennett ¹⁸	Suliamilamide	1000	Bennett ²
Pelargonic acid	1000	Bennett ²	Sulfanilic acid	1000	Pivnick & Fabian ¹⁰
Pentachlorophenolate, sodium salt	1000	Wheeler & Bennett ¹⁸	Sulapyridine	1000	Pivnick & Fabian ¹⁰
Pentachlorophenol	1000	Bennett ²	2,2,3-Tetrachlorhexafluorobutane	1000	Bennett ²
Pentaerythritol diacetate	1000	Pivnick & Fabian ¹⁰	2,3,5-Tetrachlorhexafluorobutane	1000	Bennett ²
			2,2,3,3-Tetrachlorhexafluorobutane	1000	Wheeler & Bennett ¹⁸
			2,3,4,6-Tetrachlorphenate, sodium salt	1000	Bennett ²
			2,3,4,6-Tetrachlorophenol	1000	Wheeler & Bennett ¹⁸
			Tetrachlorophenol, coconut amine salt	1000	Bennett ²
			Tetradecylamine	1000	Pivnick & Fabian ¹⁰

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More detergent suds *immediately* increase consumer acceptance for your product! Every micelle produced in solution from Pilot HD-90 is homogeneously effective for uses such as household sudsers, industrial detergents and scouring powders. Cold processing eliminates odors, undesirable oils, stickiness and other bad characteristics from molecular rearrangement and side reactions. Pilot HD-90's high quality in the making and mixing of dry products is equally applicable to the manufacture of liquid detergents. Pilot HD-90's concentrated and low sulfate properties minimize filtering; give liquids the highest sudsing and cleansing powers obtainable. Write for formulas and samples. *Only Pilot HD-90 Detergent features this premium quality at competitive prices!*

Packed in polyethylene lined fibre drums and 5-ply paper bags...



PILOT Chemical Co. Manufacturers of
215 WEST 7th STREET • LOS ANGELES 14, CALIFORNIA

Sulfonic Acids
Dodecyl Benzene Sulfonates
Sodium Toluene Sulfonate

BETTER DISTRIBUTION METHODS



14 SEPARATE REQUISITIONS for assorted chemicals come in to New York office of national manufacturer. Purchasing agent has single order made out and calls nearby Merchants office.



ENTIRE ORDER IS PUT ON TELETYPE to Merchants offices and warehouses across the country. Each of Merchants' other offices is similarly equipped to function as central ordering point.



DELIVERIES GO OUT IMMEDIATELY to all 14 plants. Each plant has its order filled from nearby Merchants warehouse; short haul delivery saves time and shipping costs.



SINGLE INVOICE FROM MERCHANTS covers all 14 shipments. By calling Merchants, this purchasing agent supplies the chemical needs of all his plants quickly and economically from a single, reliable source!

NATIONAL MANUFACTURER MAKES ONE CALL TO MERCHANTS, GETS LOCAL DELIVERY TO 14 PLANTS ACROSS THE COUNTRY!

Each Merchants office is geared to supply fast, efficient delivery of industrial chemicals from warehouses throughout the country. Each Merchants office provides all the advantages of nationwide service with all the economy of local delivery. A single call to Merchants saves you

time, reduces your shipping costs, and simplifies to a considerable extent your order and invoice paperwork. Products include acids, alkalis, fungicides, surfactants, chlorinated solvents, emulsifiers, laundry compounds, soaps, dry ice and chemical specialties.



MERCHANTS CHEMICAL COMPANY, INC.

60 East 42nd Street, New York 17, N. Y.

SALES OFFICES AND WAREHOUSES: Chicago • Cincinnati • Denver • Louisville • Milwaukee • Minneapolis • New York • Omaha

STOCK POINTS: Albuquerque, N. M. • Erwin, Tenn. • S. Norwalk, Conn. • Columbus, Ohio



BLOCKSON Sodium Phosphates

Blockson is the sodium phosphate producer that provides small and large users alike with the phosphates they want when they want them. WRITE FOR NEW CATALOG-HANDBOOK.

BLOCKSON CHEMICAL COMPANY

Division of Olin Mathieson Chemical Corporation

Joliet, Illinois



Blockson Plant . . . Joliet, Ill.

- Sodium Tripolyphosphate
- Tetrasodium Pyrophosphate, Anhydrous
- Sodium Polyphos (Sodium Hexametaphosphate) (Sodium Tetraphosphate)
- Trisodium Phosphate, Crystalline
- Trisodium Phosphate, Chlorinated
- Trisodium Phosphate, Monohydrate
- Sodium Acid Pyrophosphate
- Sodium Silicofluoride
- Sodium Fluoride
- Hygrade Fertilizer
- Monosodium Phosphate, Monohydrate
- Hydrofluoric Acid
- Sulfuric Acid
- Teox® 120



see Shulton

before you buy aromatic chemicals

Would the Menthol you use pass this test?

Can you answer "yes" on all these points for the menthol you're using now? Check them off:

BATCH TO BATCH UNIFORMITY?

On this point, Shulton l-menthol USP gets a perfect score. Menthol character is always constant. Next week, next month, next year,



your product will taste the same, will win the same consumer approval. No need to adjust formulations for variations in menthol character in your raw material, as you may need to do with natural menthol.

NO PEPPERMINT BY-ODOR?

As a synthetic, l-menthol USP is processed before you get it to remove all impurities that cause by-odors. Result: a cleaner, fresher note that your customers will notice immediately. (There's an easy spot-test you can make yourself. Ask the Shulton salesman to show you.)

EASE OF HANDLING?

With l-menthol USP, there is no need for you to wash or recrystallize, because there are no occluded impurities. You save on handling and processing in your plant. Shulton does it for you in the initial synthesis.

ASSURED SUPPLY?

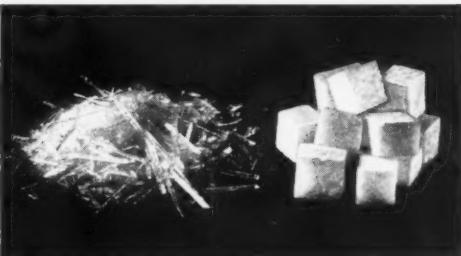
Made right here in New Jersey in a large plant, Shulton's l-menthol USP is always available, can always be delivered to you quickly, in the quantity you need. Long-term contracts can be arranged to simplify your inventory problems.

STABILIZED PRICE?

Because Shulton's l-menthol USP is a synthetic product made domestically, prices can be stabilized and wide fluctuations can be eliminated through long-term contract.

TECHNICAL SERVICE?

Shulton experience in manufacture and product application is part of every pound of l-menthol USP you buy. Technical service men can help you with problems. A call to Shulton brings fast action.



CONVENIENT FORMS?

Shulton's synthetic l-menthol USP is available as colorless crystals or as colorless fused lumps (ask the Shulton salesman about the special economy of this special form)—whichever is more convenient for your purpose.

Prove it to yourself. Send for a sample, or make the simple spot-test. We'll show you how. Write today! Or call CI 5-6263.

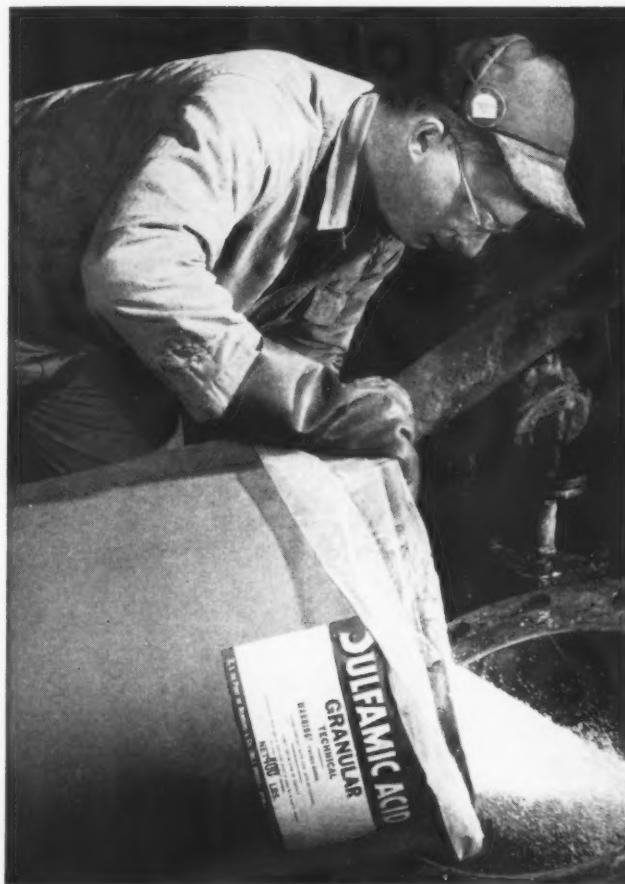
**MARKET TESTED
In successful products**

BENZYL ACETATE • GERANIOL
HELIOTROPINE • ISOEUGENOL
LINALYL ACETATE
METHYL ANTHRANILATE
RHODINOL SHULTON
VANILLIN, U.S.P. • VANITROPE®
AND MANY OTHERS



SHULTON FINE CHEMICALS

DIVISION OF SHULTON, INC., 630 FIFTH AVE., NEW YORK 20, N.Y.



Du Pont SULFAMIC ACID

now available in
granular as well
as crystal form

Unbeatable for formulating scale removers and acid-type cleaners

The new free-flowing . . . non-caking granular sulfamic acid is another advance in the production of practical, easy-to-handle efficient acid cleaners. Sulfamic acid will handle the toughest cleaning job. Whether you are producing cleaners for copper-bottom pans, air-conditioning equipment, or boilers, sulfamic acid

enables you to produce a cleaner that will do it fast, safely, and economically *without fumes*. And metal corrosion is easily controllable in sulfamic-based cleaners.

What's more, sulfamic acid eliminates special-handling procedures . . . glass breakage or acid-spilling damage . . . expense of returnable containers.

HERE'S WHERE DU PONT SULFAMIC ACID CAN BE USED!

Metal Cleaners and Brighteners
Brick and Concrete Cleaners
Dishwashing-Machine Cleaners
Sugar-Evaporator Descalers
Food-Processing Equipment

Dairy Milk-Stone Cleaners
Paper-Mill Felt and Wire
Cleaners
Brewery Cleaning
Heat-Exchanger Cleaners

Marine Cleaners
Toilet-Bowl Cleaners
Copper Cleaners
Silver-Dip Cleaners
Stainless-Steel Cleaners

CRYSTAL GRADE. 99% active material for synthesis and chemical uses where high purity is required.

GRANULAR GRADE. A specially prepared, new, free-flowing, non-caking sulfamic acid designed for use in your formulated compounds.



DU PONT SULFAMIC ACID



Better Things for Better Living . . . through Chemistry

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Room N-2539
Wilmington 98, Delaware

I would like more information about Du Pont sulfamic acid for use in:

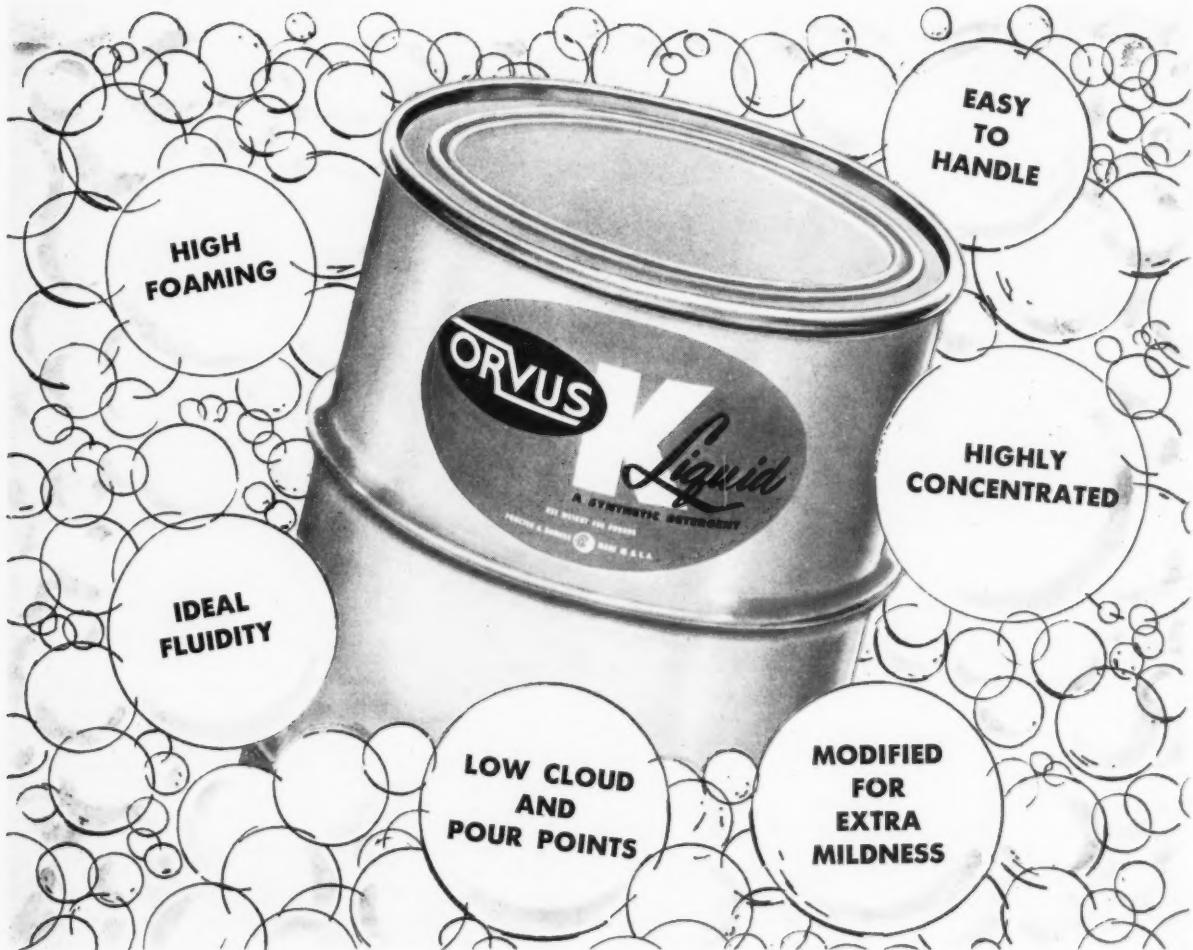
Name _____ Position _____

Firm _____

Address _____

City _____ State _____

6 Good Reasons for formulating liquid detergents with ORVUS K LIQUID



**A high-foaming detergent
that will help you
turn out better liquid
detergents every time!**

Your best bet for formulating liquid detergents where high foaming is required, Orvus K Liquid can help you boost profits—and customer satisfaction—every time! For full information on the many advantages this cosmetic-grade, ammonium lauryl sulphate type can offer you, drop a postcard to . . .

Procter & Gamble

Bulk Soap Sales Department, P.O. Box 599, Cincinnati 1, Ohio

AMERICA'S LARGEST MANUFACTURERS OF TOP-QUALITY SOAPS AND SYNTHETIC DETERGENTS

News

Beach Appoints Hamel

Beach Soap Co., Lawrence, Mass., has appointed Murray Hamel as sales representative in the



Murray Hamel

New York metropolitan area, it was announced recently. Having completed the firm's course in commercial and institutional laundering, Mr. Hamel will render technical service on washroom problems. He will sell and service the Beach line of washroom supplies.

Evans Elects Two

The election of Ralph L. Evans, Jr. and C. Edgar Chamberlain to the board of directors of Evans Research and Development Corp., New York, was announced recently by Ralph L. Evans, chairman. Mr. Chamberlain is vice-president and general manager of Sales Affiliates, Inc., New York, while Mr. Evans is vice-president in charge of foreign operations for Evans Chemetics, Inc., New York.

Purex Sales Record

Sales of Purex Corp., South Gate, Calif., reached a new high in the fiscal year ended June 30, it was announced recently. Reported sales totaled \$34,850,430, as compared with \$25,113,678 in the preceding year, or an increase of 39 percent. Purex net sales have almost doubled in the four years since

1952, when they totaled \$17,632,129.

The company also reported a substantial rise in net income for the 1956 fiscal year to \$1,001,249, equal to share earnings of \$1.59, as against \$762,867 and \$1.22 in the comparable period in 1955.

The payment in the 1956 fiscal year of cash dividends at the rate of 20 cents per quarter extended the company's consecutive dividend record to 20-years.

—★—

BIMS Holds Last Tourney

BIMS of Boston held its final golf tournament of the season on Sept. 25 at the Nashua Country Club, Nashua, New Hampshire. The prize winners were Dave Newell of Howe & French Co.; George E. Clarke of Boston Woven Hose & Rubber Co.; and Jack Conover of L. Sonneborn & Sons. The special door prize of a portable television set was won by John Ahearn of U.S. Industrial Chemicals Co.

—★—

Stepan Names Eudy

Stepan Chemical Co., Chicago, recently announced the appointment of George Eudy as southeastern sales representative. A graduate of North Carolina State College, Mr. Eudy was formerly associated with Onyx Oil and Chemical Co., Jersey City, N. J.

G. H. Eudy



Terry Bon Ami V.P.

Bon Ami Co., New York, recently announced the election of Dr. Daniel H. Terry as vice-presi-



Daniel H. Terry

dent in charge of research and development. Dr. Terry, who joined Bon Ami in 1952 as research director, developed the formula for "Jet Spray Bon Ami," an aerosol dispensed cleanser, the firm's newest product. He previously had been associated with General Dyestuff Corp., Antara Products Division, and General Aniline & Film Corp., all of New York, and E. I. du Pont de Nemours & Co., Wilmington.

As a member of the Chemical Specialties Manufacturers Association, New York, he has served three years as chairman of the Soaps, Detergents and Sanitary Chemical Products Division, as a member of the board of governors, and is presently a member of the policy advisory committee. In the Association of American Soap and Glycerine Producers, Inc., New York, he is vice-chairman of the machine dishwashing and building and equipment maintenance committees. He also is a member of the American Institute of Chemists.

Dr. Terry was graduated from Randolph-Macon College and obtained his degree of Doctor of Philosophy in organic chemistry from the University of Virginia.

NOW! ONE CALL...ONE SOURCE for detergent flakes, powders, beads, liquids, slurries!



All your detergent needs can now be filled from one reliable source . . . in liquids, slurries, flakes, powders and beads. In the manufacture of detergents, Ultra Chemical Works maintains highest standards for uniform activity and density to give you the finest detergents for your specific application. And you can combine all products for quantity price!

Here are just some of our detergents that will give you unmatched dependability:

ALKYL ARYL SULFONATES (Dodecyl Benzene Sulfonates)

Spray-Dried Sulframin* AB 40 Beads (Neutral)

Sulframin HD Beads (Built)

Drum-Dried Sulframin AB Conc. Flake and Powder

Sulframin AB 40 Flake and Powder

Liquids and Slurries

Sulframin E Liquid

Sulframin KE Liquid

Sulframin L (with foam stabilizer)

Sulframin L Conc. (45% active)

Sulframin AB Slurry

NON-IONIC SPRAY-DRIED BEADS

Neopone LO

Detergent MCR

For further information on these and other detergents mail the coupon at left.

*T. M. Reg. U. S. Pat. Off.

Ultra Chemical Works, Inc.
An Associate of the Witco Chemical Group

Joliet, Ill.

PATERSON, N. J.

Hawthorne, Calif.



ULTRA CHEMICAL WORKS, INC.
P. O. Box 2150, Dept. SC11, Paterson, N.J.
Please send me detailed information on

NAME _____
ADDRESS _____
CITY _____ STATE _____

P & G Elects New Vice-Presidents; Deupree Predicts Good Year in 1957

THE election of three new vice-presidents to head three divisions of Procter & Gamble Co., Cincinnati, was announced at the firm's annual meeting of the board of directors and shareholders, held last month in Cincinnati. Donald H. Robinson was named vice-president in charge of overseas operations, while H. Schuyler Cole and Mark Upson were named vice-presidents in charge of the toilet goods and food products divisions, respectively. The latter two posts are newly-created while the overseas vice-presidency has been vacant since 1954.

Mr. Robinson was formerly director of overseas operations. He joined P&G in 1929 in the advertising department, becoming manager of a brand promotion division in 1951. In 1953 he was transferred to England where he served as managing director for Thomas Hedley & Co., P&G's British subsidiary. He was named director of overseas operations in 1955.

Mr. Cole was formerly manager of the toilet goods division. He joined P&G in 1931 in the advertising department and later transferred to the sales department. He was named district sales manager in Chicago in 1936 and served for four years as sales director for Thomas Hedley & Co.

Mr. Upson was formerly manager of the food products divi-

sion. He joined P&G in 1915 as a clerical assistant in the firm's sales department and later held increasingly responsible positions in the sales organization. He was named general sales manager of the company in 1946 and held that position until he became manager of the food products division in 1955.

Shareholders attending the annual meeting were told by R. R. Deupree, chairman of the board, that business has been "steady and strong" throughout the year and has grown in a way that "should be reassuring to shareholders."

Mr. Deupree also discussed with shareholders the firm's entry during the past year into the peanut butter and prepared cake mix fields. "Although soap, shortening and edible oils have always been and will remain the company's major business," he said, "diversification has characterized the company's activities since 1900 when it began crushing cottonseed. Since that time, diversification of interest with products closely allied to our fundamental business always has been important and profitable to us."

Mr. Deupree also told the shareholders that the company's organization is prepared to handle an "ever growing business." This has meant building completely integrated organizations within the company to handle each of the various types of industry in which

P&G is engaged. Each of these organizations is a complete business unit comprising manufacturing, selling, advertising, research, accounting and all other functions needed to carry on the business activities completely.

"The company's overseas operations," Mr. Deupree said, "are doing very well." He added that a new manufacturing unit in Belgium will open soon.

"In looking ahead," Mr. Deupree said, "the American people have more money to spend, above the cost of food, clothing and shelter, than ever before in history. With this tremendous backlog in purchasing power, there is little doubt that the general economy of the country should continue on an increased basis, certainly for the next 12 months. So, when we look forward to the year ahead, we feel confident of our progress in this kind of an economy."



Swerp Receives Scott Award

Dr. Daniel Swern, a research chemist at the U.S. Department of Agriculture's eastern utilization research branch laboratory at Wyndmoor, Pa., received the John Scott Medal Award last month in recognition of his work in the discovery of new industrial chemicals from surplus animal fats. The award, consisting of \$1,000 and an inscribed copper medal, was presented at a meeting of the Philadelphia section of the American Chemical Society at Franklin Insti-

Donald H. Robinson



H. Schuyler Cole

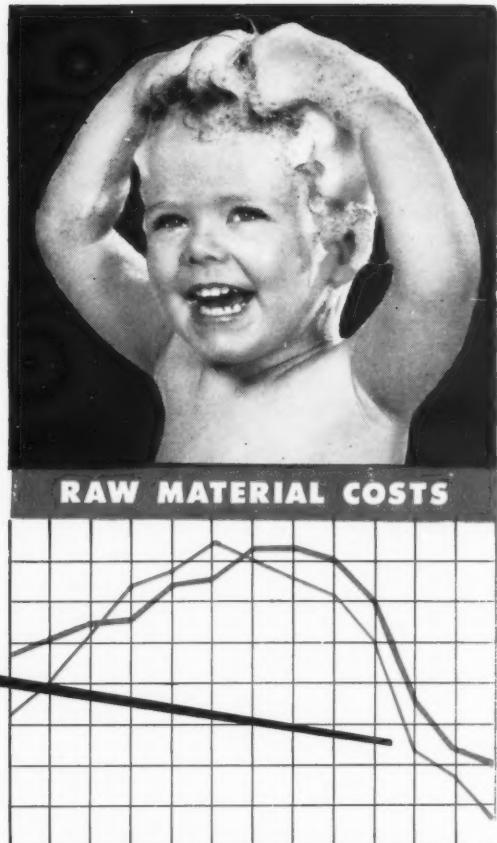


Mark Upson



HE CUTS YOUR COSTS...

when he's put
to work in your shampoo



The ULTRAWETS wet, penetrate, clean, emulsify.

Have you met the ULTRAWETS, the alkyl aryl sulfonates that have saving ways with good shampoos?

Here's why you'll want to know them better . . .

ULTRAWETS in your shampoo formulation may help you to improve your present product. On top of that, these superior alkyl aryl sulfonates are far less costly than many other types of detergents and will lower your costs.

Add the inevitable consumer acceptance of these new shampoos, and you have a combination of advantages well worth going after. Let us help you. Our sales engineers will be glad to work with you to develop the ULTRAWET-base shampoo formulation to meet your performance requirements. Just send the coupon or write one of the offices listed.

THE ATLANTIC REFINING COMPANY

Dept. E-11, Chemical Products Sales
260 South Broad Street, Philadelphia 1, Pa.

Please send information on use of ULTRAWET in shampoo.

Name _____

Position _____

Company _____

Address _____



Philadelphia, Providence, Charlotte, Chicago

In the West: L. H. Butcher Co.

In Canada: Naugatuck Chemicals Division of
Dominion Rubber Company, Ltd.

In Europe: Atlantic Chemicals SAB, Antwerp, Belgium

In South America: Atlantic Refining Co. of Brazil,

Rio de Janeiro

SOAP and CHEMICAL SPECIALTIES

tute, Philadelphia, by Henry N. Paul, a member of the City Board of Trusts.

Dr. Swern's research has resulted in the use of surplus fats in plastics and other industrial products and processes. The surpluses have resulted from the reduced use of fats in the soap industry in recent years. Dr. Swern is also credited with the development of epoxidized fatty compounds, the discovery of a process for making high purity oleic acid from inedible animal fat, and the development of fatty peracids.

He is the second Wyndmoor chemist to win the award, which was established over a century ago by John Scott, an obscure Scottish chemist. The late James Fitton Couch won in 1951 for his development of the drug rutin.

Other previous award winners include Madam Curie, Thomas Edison, Orville Wright, and Sir Alexander Fleming.

—★—

Fritzsche Appoints Niles

The appointment of M. J. Niles to the position of special representative for the president of Fritzsche Brothers, Inc., New York, was announced recently by John L. Cassullo, president. Mr. Niles, who has been associated with the company for 25 years, was formerly manager of Fritzsche's Chicago office. In his new post, he will undertake key assignments directly related to sales. He will be located at the firm's New York office.

M. J. Niles



Jack Doran to Lever

Jack Doran, formerly marketing director of Helene Curtis Industries, Inc., Chicago, has joined



Jack Doran

Lever Brothers Co., New York, as director of the promotion services division, it was announced last month by Henry Schachte, advertising vice-president.

Prior to joining Helene Curtis, Mr. Doran served as director of advertising and sales promotion with Simoniz Co., Chicago. He previously had been associated with Young and Rubicam, and Tatham-Laird, New York advertising agencies. In his new post, Mr. Doran will be responsible for the promotion policies and service activities of the firm's Lever divisions.

—★—

Record Tussy Ad Budget

Tussy Cosmetiques, a division of Lehn & Fink Corp., New York, has commenced the most ambitious advertising campaign in its history, it was announced last month by Paul Carey, division manager. Tussy will spend close to \$2,000,000 during the 1956-57 advertising year in national magazines, daily and Sunday newspapers and point-of-sales displays. During the first half of the campaign major emphasis will be on the teen-age market. The company will feature its "Medicare" skin treatment kit for teen-agers and its line of deodorants. This will parallel Tussy's distribution of 10,000 film strips on the care of skin, personal hygiene and good grooming.

Wyandotte Names Frisch

The appointment of Dr. Kurt C. Frisch as director of application research of Wyandotte Chemicals Corp., Wyandotte, Mich., was announced last month by Frank B. Wolcott, vice-president and general manager of the research and engineering division. He succeeds Maurice G. Kramer, who has been named director of application research of the J. B. Ford Division.

In his new post, Dr. Frisch will be responsible for the screening of Wyandotte products and research developments for new applications and for improving the sales appeal of the products. Dr. Frisch was formerly manager of the firm's polymer research.

—★—

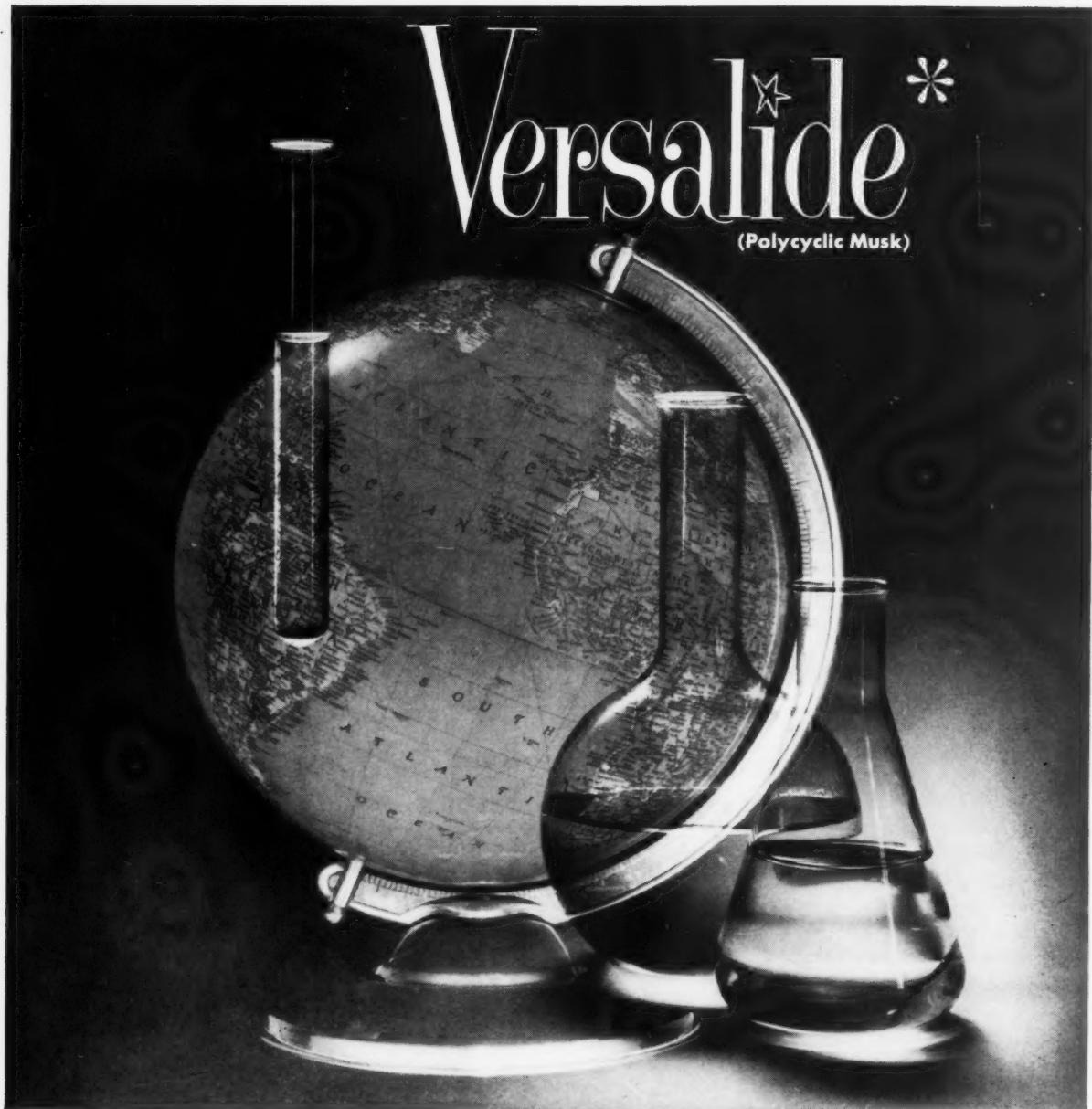
Hooker Honors Cassidy

J. Clarke Cassidy, vice-president and director of Hooker Electrochemical Co., Niagara Falls, N. Y., was honored upon his retirement as a Hooker officer, at a company cocktail party held last month at the Niagara Falls Country Club. Mr. Cassidy, who will continue as a member of the board, was president of Niagara Alkali Co., New York, until its merger into Hooker in November, 1955.

A graduate of Columbia University, Mr. Cassidy served in an engineering capacity with Aetna Explosive Co. and Calco Chemical Co. before joining Niagara in 1920 as a chemical engineer. He later became works manager and was elected president in 1941.

J. Clarke Cassidy





an international success!

Within a year of its introduction, *Versalide*, Givaudan's outstanding new polycyclic musk, has met with international acceptance! Perfumers throughout the world of fragrance have recognized in its versatility and unique combination of advantages a whole new field of opportunity for creative perfumery.

Versalide lends to a perfume all the enhancement, sweetness, strength, fixation and blending properties expected only from the macrocyclic musks, and yet at a fraction of their cost.

A pure chemical body, not a mixture, *Versalide* is economical—stable to light, heat, air, alkali; and does not discolor soap. And its versatility is practically unlimited!

We will gladly send you a sample and more detailed information.

* Reg. U.S. Pat. Off.



GIVAUDAN-DELAWANNA, INC.

330 West 42nd Street, New York 36, N.Y.

Sugar Beet Names Two

Joseph O'Brien, sales representative of Sugar Beet Products Co., Saginaw, Mich., in the New-

his former post by James B. Workman, formerly sales representative of American Agricultural Chemical Co., New York.



Joseph O'Brien



James B. Workman

Babbitt Elects Bundschuh

The election of John J. Bundschuh as a director of B. T. Babbitt, Inc., New York, was an-



John J. Bundschuh

ark, N. J., and New York metropolitan areas, has been named eastern division manager, it was announced recently by Lawren S. Lee, sales manager. He is succeeded in

Mr. O'Brien joined Sugar Beet in March 1954 after 23 years of sales experience, including some eight years in industrial equipment sales.

Waste which is currently engaged in studying the problem of water and air pollution.

—★—

Lueders Honors Goldberg

Clare Goldberg, secretary to the president of George Lueders & Co., New York, was presented with a gold wristwatch, a gold pin and other gifts in commemoration of her 25 years with Lueders, at a company dinner held last month at the Dutch Tavern in New York. Miss Goldberg is the 58th member of the company's 25 year club.

—★—

In ADM Advisory Post

John Hetchler, sales manager of the chemical products division of Archer-Daniels-Midland Co., Minneapolis, Minn., has been elected to the company's advisory committee, it was announced last month by Thomas L. Daniels, president. Mr. Hetchler was one of eight ADM executives elected to serve a three-year term on the 15-man panel. The committee is designed to give younger ADM executives a knowledge of the firm's activities and problems.

nounced last month by Samuel Mendleson, president. Mr. Bundschuh is vice-president and director of J. M. Louden, Inc., New York, financial consultants. He is also a director of Styron Corp., Buckeye Corp., Eastern Industries, Inc., and Allied International Investing Corp.

—★—

New "Hexaphos" Plant

Westvaco Mineral Products Division of Food Machinery and Chemical Corp., New York, recently announced the commercial production of "Hexaphos," (sodium hexametaphosphate), at its newly-constructed Newark, Calif., plant. The compound, which is also manufactured at Westvaco's Carteret, N. J. unit, is available in various forms including flakes, coarse granules, medium granules, powder or plates. Because of its water softening contents, "Hexaphos" is used in many dishwashing compounds and laundry mixes.

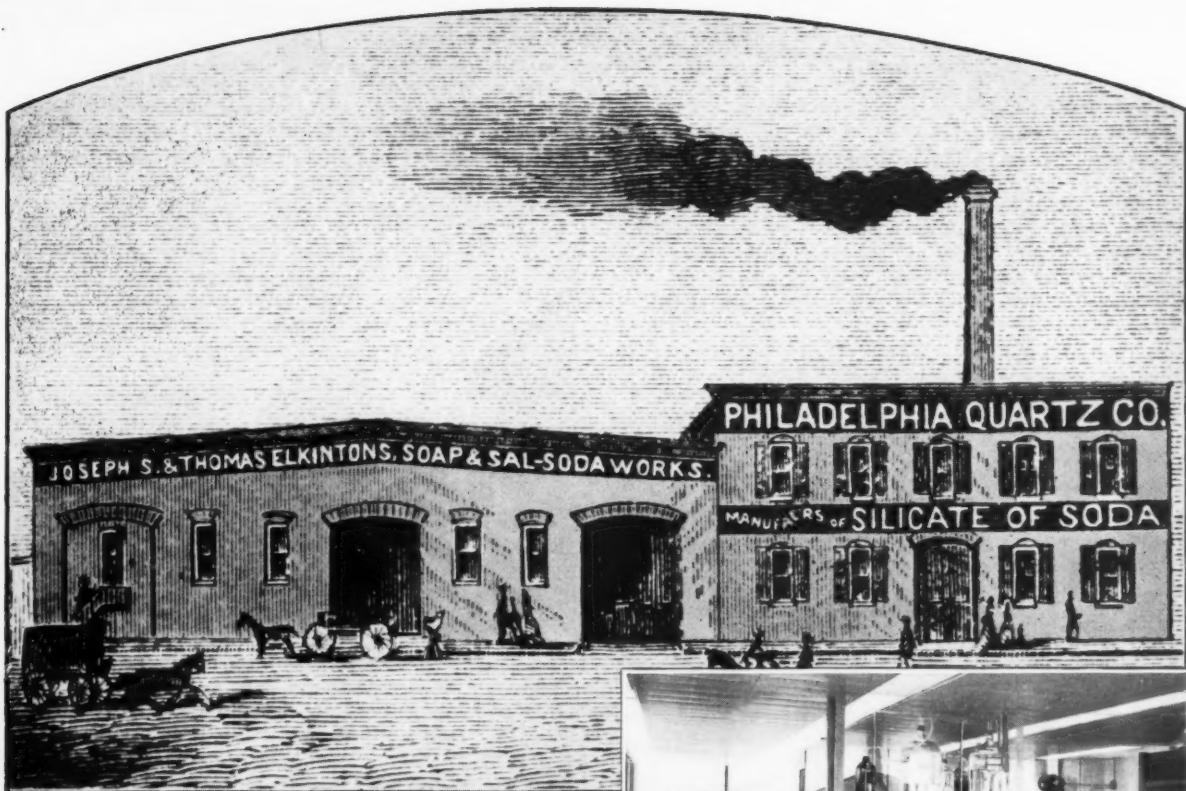
—★—

Shampoo Movie Contest

Consumer response ran well above expectations in the \$35,000 "Lustre-Creme" sweepstakes which closed Nov. 10, it was reported recently by the Kay Daumit Division of Colgate-Palmolive Co., Jersey City, N. J. A shampoo sales promotion contest, tied in with the annual popularity poll of the movie

AASGP Pollution Survey

The Association of American Soap & Glycerine Producers, Inc., New York, recently announced that a questionnaire, designed to obtain expenditure figures for the abatement of pollution, has been sent to all members. The questionnaire was issued by the National Technical Task Committee on Industrial

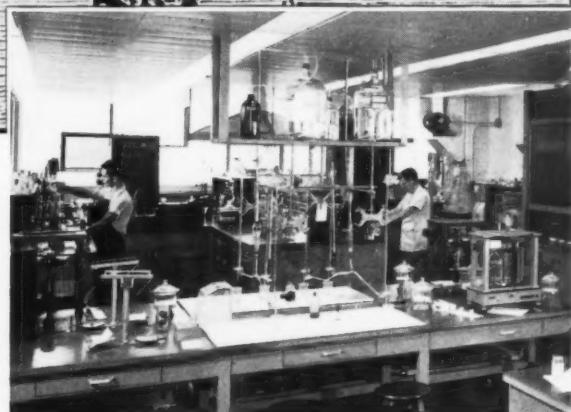


PQ's first Silicate factory in Philadelphia

125 YEARS OF IMPROVING DETERGENCY

Soaps were our first products in 1831. A quarter century later, we made silicate of soda for our use, and afterwards, for other soapmakers who wanted the same improved detergency for their brands. Early in the 1900's, soap manufacture was discontinued to permit us to specialize in silicates for detergent uses as well as for other applications which were developing.

PQ research in detergency continued. In 1931 the first free-flowing sodium metasilicate was produced under our patents. Then in succession came PQ's sodium sesquisilicate, sodium metasilicate anhydrous and



concentrated orthosilicate. You know these detergents under the trademark "Metso".

When synthetic detergents were introduced, our laboratories studies showed how soluble silicates improved their efficiency. Silicates of soda contribute the very useful ability of protecting metals from corrosive attack by a large number of synthetics and polyphosphates.

Results of our investigations have been published in patents, in scientific and trade journals and in our printed bulletins.

How can this vast fund of silicate information help you?



PQ
SILICATE OF SODA

METSO DETERGENTS

PHILADELPHIA QUARTZ COMPANY
1152 Public Ledger Building, Philadelphia 6, Pa.

Associates: Philadelphia Quartz Co. of Calif. Berkeley & Los Angeles, Calif., Tacoma, Wash.; National Silicates Limited, Toronto, Canada
Distributors in over 65 cities

TRADEMARKS REG. U.S. PAT. OFF.

PQ WORKS: ANDERSON, IND., BALTIMORE, MD., BUFFALO, N. Y., CHESTER, PA., JEFFERSONVILLE, IND., KANSAS CITY, KANS., RAHWAY, N. J., ST. LOUIS, MO., UTICA, ILL.

industry, the sweepstakes was run on a nationwide basis and offered a grand prize of \$20,000 plus 506 other cash prizes. This is the sixth consecutive year that "Lustre-Creme" has sponsored the contest. Winners will be announced within the next few weeks.

★

Acquired by Helene Curtis

The acquisition of the Lenthaler Division of Olin Mathieson Chemical Corp., Baltimore, was announced last month by Helene Curtis Industries, Inc., Chicago. Present plans call for keeping the Lenthaler organization intact and operating it as a wholly-owned subsidiary.

According to Willard Gidwitz, Curtis president, the terms of the purchase involve partial payment in Curtis stock and the balance in cash. The purchase price was not disclosed. Thomas S. Nichols, president of Olin Mathieson, said that the sale of the Lenthaler Division is consistent with the corporation's policy of "concentrating in its major fields of activity."

Lenthaler, over 70 years old, was introduced into the United States by E. R. Squibb & Sons, Brooklyn, N. Y., which was purchased by Olin Mathieson in 1952. Its products include "Tweed," "Miracle," "Dark Brilliance," and "Adam's Rib" perfumes, and also "Tweed" hair spray and shampoo.

Lenthaler recently moved its executive offices to its new plant at West Caldwell, N. J. The new unit has been under the direction of Jack Mohr, general manager.

★

Givaudan to South America

Andre Givaudan, a director of L. Givaudan and Cie., S.A., Geneva, Switzerland, left the United States last month for Brazil and Argentina, after completing his semi-annual visit to this country. While here, Mr. Givaudan conferred with directors of Givaudan Delawanna, Inc., and Sindar Corp., New York, American subsidiaries of L. Givaudan and Cie.

Smith Heads Twiss Agency

William A. Smith has been elected president of The House of J. Hayden Twiss, New York advertising agency, it was announced late last month. He succeeds J. H. Twiss, who died Oct. 5. At the same time Fred J. Schlutow was advanced to first vice-president and treasurer.

A graduate of Harvard University, Mr. Smith was associated with Oil, Paint and Drug Reporter as market reporter from 1938 to 1941. He served with the Eighth Air force from 1942 to 1945 when he returned to OPD. From 1946 to 1947 he was news editor and in 1947 he advanced to executive

managing editor. He left OPD in 1950 to join Hayden Twiss.

★

Pennsalt Advances Two

C. Brooks Ricca has been named Philadelphia district sales manager for metal processing products of Pennsylvania Salt Manufacturing Co., Philadelphia, and James Carlin has been appointed to the field sales staff, it was announced recently by John M. Davidson, department manager.

Mr. Ricca has been with the company since 1950 handling sales of metal cleaners, FOS coatings, and cold forming lubricants in New York, northern New Jersey, Pittsburgh and Philadelphia.

Newly modernized and expanded office and warehouse facilities of Ungerer & Co., 161 Avenue of the Americas, New York, shown below feature modern decorative elements, plus air conditioning, indirect lighting, office equipment of late design. Section of New York sub-warehouse facilities, including packaging and shipping appear in lower photograph. Recently added mezzanine floor was part of general modernization and expansion program.



Worth Your Investigation...

[REDACTED]

An Aldehyde of great stability and of such high degree of purity that it can be used in the finest perfume extracts as well as soaps and cosmetics.

[REDACTED]

An Acetal resembling the aroma of Reseda Mignonette. It is a valuable addition to all floral bouquets, and as a modifier for the purpose of rounding off all types of compositions.

[REDACTED]

An Aldehyde of great potency; imparts the aldehydic top note to perfumes to which it is added. It is extremely valuable as a modifier. Used from 1/10 to 1/4 of 1%.

[REDACTED]

An Acetal, ideal for all rose type compounds, because of its fine character, great lift and extreme stability.

The advantage of these aromatic chemicals is that their great purity permits their use in the most luxurious perfumes . . . and their low cost makes them feasible for even the most inexpensive soap fragrances.

Sole Representative in the United States for J. and E. Sozio, Grasse, France

RESINOIDS • NATURAL ABSOLUTES • ESSENTIAL OILS

Write for our complete catalogue.

VERONA

PRODUCTS BUILD SALES FOR *Your* PRODUCTS

Aromatics Division

VERONA CHEMICAL COMPANY

Plant and Main Office: 26 Verona Avenue, Newark, N. J.
1210 Rosedale Avenue, Chicago, Ill.

New Armour Appointments

Armour & Co., Chicago, recently announced the appointment of Jack Maloney as petroleum technical service advisor. A graduate of Boston College, Mr. Maloney has served the firm as a chemical salesman in the Philadelphia office which services eastern Pennsylvania and southern New Jersey.

It was also announced that C. D. LaSusa, who formerly held the position of petroleum specialist, has been named southern regional manager. His area includes all of the states south and west of Virginia.

McDonough in New Post

Election of Dr. Everett H. McDonough, vice-president of Evans Cosmetics, Inc., to the newly-created position of executive vice-president of Evans Research and Development Corp., was announced recently by Dr. Ralph L. Evans, president. Since Evans research was formed in 1946, Dr. McDonough has held the positions of vice-president and general manager. He is also a director, and chairman of the executive committee.

GAF Earnings Rise

Net earnings of General Aniline & Film Corp., New York, for the first six months of this year showed an increase of 51 percent over the corresponding period in 1955, it was announced recently by John Hilldring, president. Net income amounted to \$2,626,000, which was equal to \$3.29 per share of common A stock. For the comparable period in '55, net income was \$1,744,000, or equal to \$2.19 per share of common A stock.

In Wyandotte Post

The appointment of T. C. Simpson as distributor promotional manager of the Michigan Alkali Division of Wyandotte Chemicals Corp. Wyandotte, Mich., was announced recently. In his new position, Mr. Simpson will work directly with the division's distributors, in conjunction with the firm's

sales staff, in development of policies, plans and sales promotional programs.

A graduate of the University of Michigan, Mr. Simpson joined the Michigan Alkali Division in 1945 as a research chemist after serving as acting dean of Port Huron Junior College.

—★—

New Dishwashing Folder

Dishwashing tips for the restaurant, institutional and hotel food service industry are discussed in a new, fully illustrated, 16-page booklet, recently made available by Calgon, Inc., Pittsburgh.

Machine and hand-dishwashing of china, plastic ware, glass ware and pots and pans are described in detail. Use information is included on Calgon's line of liquid and solid detergents and allied products as well as on dishwashing equipment. Copies are available from the company, Hagan Building, Pittsburgh 30, Pa.

—★—

Letheric Names Whiteman

Appointment of Ollie Whiteman as territory manager of northern New York for Letheric, West Caldwell, N. J., a subsidiary of Helene Curtis Industries, Chicago, was announced recently by Ray Meffen, general sales manager of the division. Mr. Whiteman, who replaces George Furey, recently had been associated with Pomeroy's department store of Levittown, in buying and merchandising capacities.

—★—

GAF Advances Williams

S. H. Williams, vice-president of General Aniline & Film Corp., New York, has been appointed assistant general manager of the dyestuff and chemical division. Mr. Williams has been with General Aniline for 28 years, joining the company as a technical salesman. He was named manager of the firm's Charlotte, N. C. branch in 1941 and in 1952 was advanced to the position of general sales manager of the dyestuff and chemical division. He was elected vice-president in 1954.

Westvaco Sales Changes

Two technical sales appointments of Westvaco Mineral Products Division of Food Machinery and Chemical Corp., New York, were announced recently by Donald C. Oschin, sales manager. Howard C. Peterson has been named assistant technical sales representative for the firm's phosphate chemicals while John S. Thompson has been appointed technical sales representative for the company's barium products.

Mr. Peterson was previously employed by Foster D. Snell Corp., New York, where he worked in the field of detergent production. Prior to that he was with Carbide and Carbon Chemicals Co., New York. Mr. Thompson served for the past four years in the division's research laboratory at Carteret, N. J.

—★—

P.V.O. Names W.H.C.

Pacific Vegetable Oil Corp., San Francisco, recently appointed Welch, Holme & Clark Co., New York, as sales representatives in the New York metropolitan area and parts of New York State, New Jersey and Pennsylvania. Welch, Holme & Clark handles P.V.O.'s line of imported and domestic oils.

—★—

Emery Appoints Two

Two additions to the research staff of Emery Industries, Inc., Cincinnati, were announced recently by Dr. R. K. Kadesch, director of research. Robert J. Sturwold has been assigned to the organic research section, under the supervision of C. G. Goebel while E. B. Cook, Jr. has been attached to the process research section under the direction of V. J. Mucherheide. Mr. Sturwold recently received his masters degree from Xavier University, Cincinnati, where he also did his undergraduate work. Mr. Cook, who will conduct research on dry cleaning processes for Emery's "Sanitone" division, was previously manager of Colonial Cleaners, Inc., Atlanta, Ga., and is a graduate of Georgia Institute of Technology.

SOCMA to Hear McKeen

A discussion of the "Outlook for the Chemical and Pharmaceutical Industry in 1957" by John E. McKeen, president and chairman of the board of Chas. Pfizer, Inc., Brooklyn, N. Y., will highlight the 35th annual meeting of the Synthetic Organic Chemical Manufacturers Association, to be held Dec. 3, at the Hotel Biltmore, New York. Prior to Mr. McKeen's address, there will be a cocktail hour, scheduled to begin at 6:00 p.m., and dinner. The SOCMA's annual business meeting will commence at 4:30 p.m.

A graduate of Brooklyn Polytechnic Institute, Mr. McKeen joined Pfizer as a control chemist. He later served as a process engineer in a number of departments and was named superintendent of the Brooklyn plant during World War II. In 1944, Mr. McKeen was appointed to the board of directors and a year later was elected a vice-president. He became executive vice-president in 1948 and was elected president the following year. In 1950 he became, in addition, chairman of the board.

New Type Pallet

Titan Pallet Co., New York, recently announced the development of a new tray-type expendable pallet, designed for bag, carton, and bulk material shipping. Tradenamed "Model P," the pallet is constructed of paperboard and is claimed to have capacities up to one ton and to stack loads four-high. "Model P" is available in all standard sizes, and in fire and moisture resistant models to specification on special order. Further information, in the form of a detailed, fully illustrated brochure, can be obtained from Titan, 527 Madison Ave., New York 22.

Save research time by formulating with Wyandotte's new Pluronic Grid

Now . . . choose surface-active agents with the best possible balance of properties for your formulation . . . cut down on research time . . . eliminate random evaluation of unrelated surfactants!

The Pluronic* Grid makes it possible. It suggests, *in advance*, characteristics you can get using a Pluronic or combination of Pluronics — Wyandotte's unique series of 100%-active non-ionic surface-active agents.

Pluronic surfactants range in molecular weight from 1000 to 11,000; have a controlled hydrophilic-hydrophobic balance. By varying their molecular weights and hydrophilic-hydrophobic ratio in small, controlled increments, an over-all balance of desirable properties is provided: controlled sudsing, a range of surface-active properties, stability, low hygroscopicity, dedusting properties, low order of toxicity . . . properties which can be plotted as trends across the Grid.

Thus, the formulator can select, from the Grid, the Pluronics having the best balance of properties for his formulation.

However, only a thorough laboratory evaluation will give the full scope of what Pluronics can do for you.

Get your copy of the Pluronic Grid, samples, and technical data on Pluronics. Write us today on your company letterhead. *Wyandotte Chemicals Corp., Dept. SCS-11, Wyandotte, Mich. Offices in principal cities.*

*REG. U.S. PAT. OFF.

Wyandotte CHEMICALS



BLEACHING AGENTS • CARBOXYMETHYLCELLULOSE • CAUSTIC SODA • CALCIUM CARBONATE
CALCIUM CHLORIDE • CHLORINE • DETERGENTS (NONIONIC AND ANIONIC) • EMULSIFYING
AGENTS • SODA ASH • SODIUM BICARBONATE • SOLVENTS (CHLORINATED) • WATER
SOFTENERS • WETTING AGENTS

CMRA Panel Topics

A paper on motivation research, "What It Is and How To Use It," by Burleigh B. Gardner, executive director, Social Research, Inc., New York, was one of the highlights of a technical panel presented at a meeting of the Chemical Market Research Association, held at the Hotel Sheraton-Plaza, Boston, Nov. 13-14.

Other papers presented were "New Tools for Marketing Research in Historical Perspective"; "What's Ahead in Advertising and Communication Research"; "Analyzing the National Economy"; "Methods of Determining Inventory Levels in Distribution Channels"; Getting the Most Out of Industrial Market Research Interviews"; "Operations Research as Applied to Marketing Problems"; and "How Can We Apply these Tools for More Effective Marketing Research."

Emery Appoints Sack

Joseph Z. Sack has been appointed south central field representative for the fatty acids sales department of Emery Industries, Inc., Cincinnati, it was announced recently by G. W. Boyd, department manager. In his new post, Mr. Sack will be responsible for the sale of Emery's line of fatty acids in Missouri, Kansas, Colorado, Nebraska, Oklahoma, Arkansas, Texas, western Louisiana, southern Illinois, and Tennessee. He was graduated from the University of Kentucky with a B.S. degree in chemistry.

Joseph Z. Sack



NOVEMBER, 1956



Use Wyandotte glycols for a wide variety of chemical formulations

WHEREVER YOU LOOK, formulators are incorporating Wyandotte glycols in both new and standard products: dry-cleaning soaps, window-washing compounds, steam-set inks, soluble oils, adhesives, hydraulic fluids for brake and shock-absorber systems.

Perhaps Wyandotte glycols are the very thing you are looking for in your own formulations . . . to improve them, make them more useful, more durable.

For, of the many petrochemicals being produced today, the glycols are proving to be among the most valuable and versatile — the most widely adapted in industry.

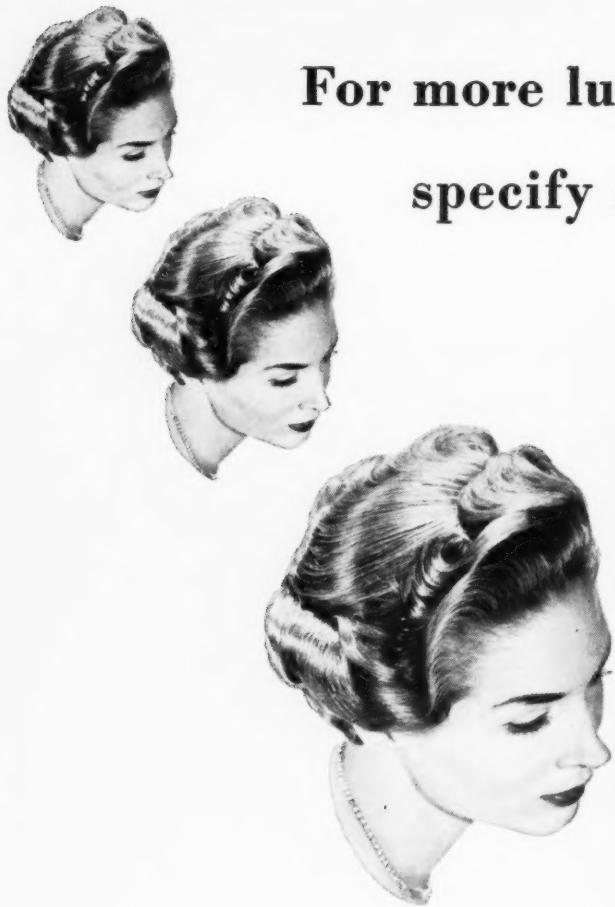
Wyandotte produces glycols on a wide scale - both ethylene glycol, and diethylene glycol - plus their related products. And they are of the highest quality offered anywhere. Perhaps we can help you in adapting the glycols to your own special needs.

For assistance, and complete technical information, call in a skilled Wyandotte representative today. Or, if you prefer, contact us direct. Write: *Wyandotte Chemicals Corporation, Dept. SCS-11, Wyandotte, Michigan. Offices in principal cities.*

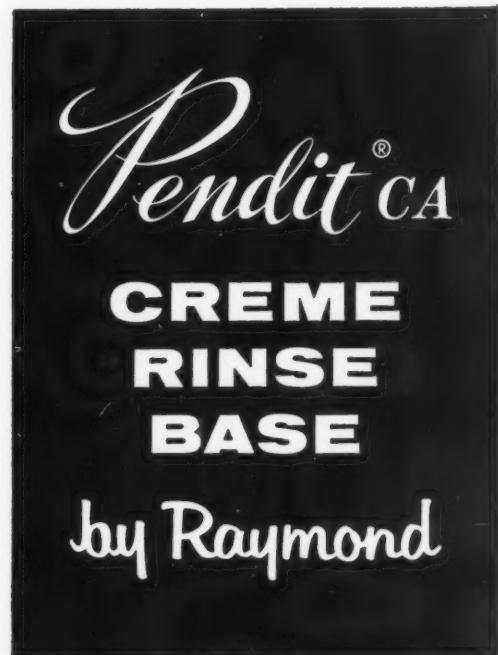
Wyandotte CHEMICALS

MICHIGAN ALKALI DIVISION • HEADQUARTERS FOR ALKALIES





**For more lustrous hair...
specify more uniform...**



The uniformity of any rinse is dependent on the uniformity of the base. PENDIT CA is a creme rinse base manufactured primarily for use in creme rinses. A paste based upon a cationic quaternary ammonium compound, PENDIT CA is batch-tested to virtually eliminate consistency problems. A very light colored hair conditioning agent that remarkably improves the combability and manageability of the hair, it also has powerful germicidal and deodorant properties. PENDIT CA is used as a bodifier to regenerate damaged and abused hair, remove tangles and snarls. Easy to formulate, PENDIT CA is kind to hair—makes it softer,

more lustrous—makes hair feel better, look better. And its antistatic properties reduce the effort needed to comb hair.

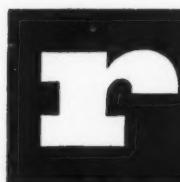
PENDIT CA IS VERSATILE

PENDIT CA can be the answer wherever a cationic emulsifier or wetting agent of unvarying physical properties is required. It is successfully used as a fabric softener, textile lubricant, mould inhibitor and industrial deodorant. A stearyl dimethylbenzyl ammonium chloride, it is stabilized against separation in the drum.

® Pendit is a registered trade-mark of Raymond Laboratories, Inc.

**Write for complete formulation
information, samples and prices**

industrial chemicals of cosmetic quality



Raymond
laboratories, incorporated

263 East Fifth, St. Paul 1, Minnesota

TGA to Meet Dec. 12

The 24th meeting of the Scientific Section of the Toilet Goods Association, New York, will be held on Wednesday, December 12, in the Sert Room of the Waldorf-Astoria Hotel, New York, it was announced recently. Papers to be presented include:

"Zirconium Oxychloride—A New Ingredient for Antiperspirants," by E. G. Helton, E. W. Daley, and J. C. Ervin, the toilet goods division, Procter & Gamble Co., Cincinnati; "A Method for Determining the Waving Efficiency of Cold Permanent Wave Lotions," by Donald H. Kirby, research and development laboratory, John H. Breck, Inc., Springfield, Mass.; "Dermatological Evaluation of Perfumes of Low Sensitizing Index," by Raymond A. Osbourn, department of dermatology, Georgetown University Medical Center, Washington, D. C.; Thomas W. Tusing, Hazelton Laboratories, Falls Church, Va.; Francis P. Coombs, New York, and Edward P. Morrise, Firmenich, Inc., New York; "A Discussion of the Functions of a Cosmetic Research Department," by Joseph Kalish, technical editor, *Drug & Cosmetic Industry*; "Dispersion of Pigments in Lipstick," by Mary Jacobovics, Avon Products, Ltd., Montreal; and "Gas Chromatography—Some Applications in the Cosmetic Industry," by Nathaniel Brenner, application engineer, Perkin-Elmer Corp., West Orange, N. J.



Pennsalt Names Ogden

The appointment of Robert P. Ogden to the position of general manager of the Industrial Quimica Pennsalt S. A. de C. V., a new Mexican subsidiary of Pennsalt International Corp., Philadelphia, was announced last month by Richard L. Davis, Pennsalt president. Mr. Ogden will supervise a plant, now under construction, that will produce chlorine, caustic soda, muriatic acid, hydrogen and DDT. A graduate of Cornell University with a chemical engineering degree, Mr. Ogden joined the firm in 1941. At the time of his appointment, he was manager of Pennsalt's plant at Riverview, Mich.



ACCCE Re-Elects Snell

Foster D. Snell, president of Foster D. Snell, Inc., New York, was re-elected vice-president of the Association of Consulting Chemists and Chemical Engineers, Inc., at the organization's annual meeting,

held last month at the Belmont-Plaza Hotel, New York. Also re-elected were Carl Bussow, A. W.



Foster D. Snell

Dow, Inc., New York, president; Earl D. Stewart, Schwarz Laboratories, Mount Vernon, N. Y., secretary; William C. Bowden, V.P. Ledoux & Co., Teaneck, N. J., treasurer.

The new councilors elected for three-year terms are: Nicholas M. Molnar, Molnar Laboratories, New York; Donald Price, consulting chemist, New York; Maurice S. Sage, Sage Laboratories, Inc., New York; Cecil M. Shilstone, Shilstone Testing Laboratory, New Orleans, La.; and Emerson Venable, consulting chemical engineer, Pittsburgh.

Holdover councilors include:

Charles Davidoff, construction chemical engineer, New York; Austin W. Fisher, Jr., Arthur D. Little, Inc., Cambridge, Mass.; Elliot A. Haller, Haller Testing Laboratories, Inc., New York; Joseph W. E. Harrison, Le Wall & Harrison Research Laboratories, Philadelphia; Percy E. Landolt, construction chemical engineer, New York; Sidney Lee, Dallas Laboratories, Dallas, Tex.; George H. Morse, Morse Laboratories, Sacramento, Calif.; James P. O'Donnell, James P. O'Donnell Engineers, New York; Auguste Roseboom, chemical consultant, New York; and Abraham Taub, chemical consultant, New York.



Non-Toxic Film Cleaner

A new film cleaner, designed for cleaning acetate, vinyl and polystyrene film, camera, stripping and art preparation equipment, was introduced recently by Anchor Chemical Corp., Brooklyn, N. Y. The product, trademarked "Film-Kleen," is said to be free of toxic and caustic solutions. Further information can be obtained from the company, 827-837 Bergen St., Brooklyn 38, N. Y.

New Lamco Floor Cleaner

A new floor cleaner, designed to keep floors skid-proof and to remove rubber burns, has been introduced by Lamco Chemical Co., Boston, Mass., it was announced recently.

The product, trademarked "Lamco Slip Preventer and Rubber Burn Remover," is said to eliminate slippery floors, even when wet or damp, and to remove black marks caused by rubber heels and soles, without stripping the floor of its wax base. It has been tested and approved by Skinner and Sherman, official chemists of the Rubber Manufacturers Association and the Asphalt Tile Institute.

Absence of free alkali in the product makes it effective in cleaning terrazzo floors. It is available in one and five-gallon cans and 30 and 55-gallon drums.



New Solvents Plant

U. S. Steel Corp., Pittsburgh, has awarded Koppers, Inc., Pittsburgh, a contract for the building of a multi-million dollar oil purification plant, at U. S. Steel's Clairton, Pa. works, it was announced recently by Dr. W. C. Rueckel, vice-president and general manager of Koppers' engineering and construction division. Construction will begin in the fall.

Dr. Rueckel also stated that the new plant would be designed to purify light oil and would be operated by U. S. Steel under rights acquired by Koppers from a German firm which first developed the pressure catalytic refining process and has had it in commercial operation for several years. The new process will be used extensively in the production of super refined benzene, toluene, and xylene.

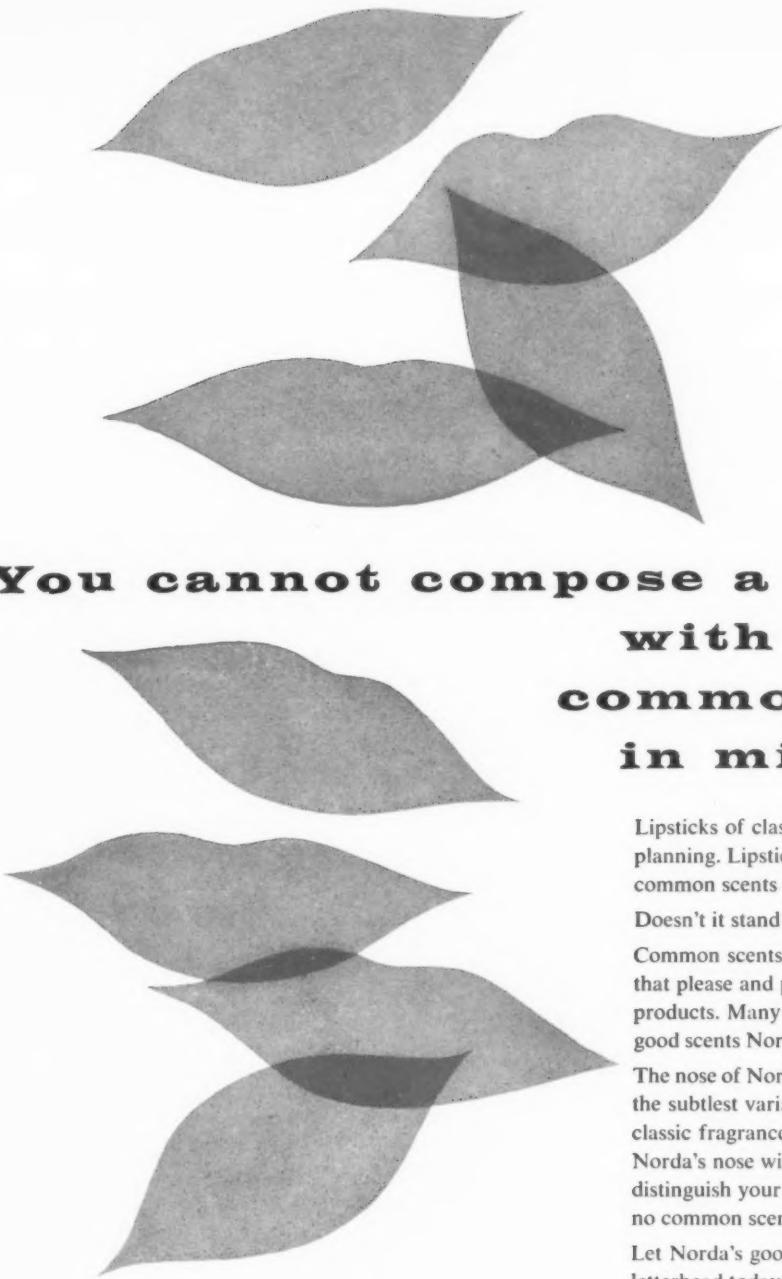
Benzene, which is the largest constituent in light oil, will be produced under this new process with a thiophene content of less than one part per million. By subsequent removal of paraffins a high solidification point may be readily attained. Completion of the plant is scheduled for late 1957.

...about soda ash service beyond the product itself

If you have ordered West End soda ash you are sure of top quality . . . but that is only the beginning of West End service. Your requests in matters of routing, scheduling, invoicing and advices are both invited and encouraged. They are attended to promptly and cheerfully. Feel free to make requests . . . no matter how small . . . at any time.



West End Chemical Company
DIVISION OF STAUFFER CHEMICAL COMPANY
EXECUTIVE OFFICES, 1956 WEBSTER, OAKLAND 12, CALIF. • PLANT, WESTEND, CALIF.
SODA ASH • BORAX • SODIUM SULFATE • SALT CAKE • HYDRATED LIME



**You cannot compose a classic
with
common scents
in mind**

Lipsticks of classic quality come from quality planning. Lipsticks that become leaders have no common scents in them.

Doesn't it stand to reason?

Common scents can never produce products that please and pay. Good scents will sell fine products. Many finer products depend on the good scents Norda makes.

The nose of Norda has learned how to compose the subtlest variations of differing odors into classic fragrances with memorable perfumes. Norda's nose will compose such a fragrance to distinguish your product uniquely. You'll get no common scents from Norda.

Let Norda's good scents help you. Send your letterhead today for *free samples*.

*Norda does what Nature does
... Norda makes good scents*



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NOVEMBER, 1956

71



HOUCHIN MACHINES

have been used throughout the
soap-making world
for over 100 years

HOUCHIN MACHINES

Crutchers — Amalgamators — Mixers — Chilled Iron and Granite Roll Mills — Plodders — Foot and Air-Operated Presses — Soap Frames — Slabbers — Powder Mills — Remelters — and other kindred equipment.

CASCADES OF SOAP FLOW FROM HOUCHIN MILLS AND PLODDERS.

Houchin machinery produces better quality soap bar. Its sturdy construction ensures continuous production and prevents serious "down-time" losses.

HOUCHIN MACHINERY CO., INC.

Manufacturers of Soap Making Equipment for Over a Century

HAWTHORNE, NEW JERSEY, U. S. A.

Perborates in Detergents

DETERTGENTS in bead form, incorporating oxygen releasing compounds, enjoy world wide and undisputed consumer preference. A recently conducted Swiss survey, for instance, showed 72 per cent of all participating housewives prefer detergent beads over powders. Reasons for this preference are obvious: Being dustless, beads do not irritate the mucous membranes and do not make the user sneeze. They do not form lumps in water as powders are prone to do. Damage to fibers or surfaces which might be caused by such lumpy concentrations of detergent is avoided. Beads do not agglomerate in the package as is the case with detergents in powder form. Owing to their globular form, they are less hygroscopic and remain free flowing even after prolonged storage.

However, washing agents in bead form and containing perborate may also exhibit certain shortcomings, most common in inadequately mixed products. Such unsatisfactory combinations are created by the addition of the perborate either by mixing it as a powder or by spraying it in some unsuitable form. Mixtures made by such procedures lack homogeneity, because they consist of relatively large hollow beads of low specific gravity and of small crystals or aggregates of fine powder of comparatively high specific weight. The small and heavy perborate particles will "sink" between the larger and "light weight" beads and gravitate towards the bottom of the container. Unless the consumer uses the whole detergent package for one operation such lack of product uniformity leads to uneven washing and bleaching effects.

Difficult from a production standpoint is the selection of the correct proportions and the right mechanical means for the mixing of small, compact perborate particles with much larger hollow detergent beads.

Products consisting of comparatively thick walled, per salt-free, spray dried synthetic detergent beads, to which perborate crystals have been added, can easily be separated into their components by sieve analysis. By this analysis one finds per salt-free or low per salt content detergent beads measuring 0.5 to 2.5 mm in diameter, and a powdery dust, rich in per salt, with particles measuring 0.1 to 0.4 mm in diameter.

Manufacturing Processes

THE quest for a process by which a stable uniform per salt containing wash powder in bead form can be made is both topical and important. Homogeneous synthetic detergents incorporating a bleach can be made in a nozzle spray tower. However, in such products the active oxygen content is low in relation to the amount of sodium perborate present. Loss of oxygen may be regarded inevitable in the hot-spraying of perborate containing detergent slurries, even in the face of all possible precautions. Towers in which such products can be made are about 17 meters high and spray 60 percent

slurry at a pressure of 50 atmospheres excess pressure. Drying is done with hot air at a temperature of 315°C.

Another possible way to obtain uniform and non-separating bead products might be the mechanical mixing of beads of different compounds by means of suitable proportioning apparatus. Straight syndet beads could thus be uniformly mixed with phosphate or persalt beads. "Light phosphates", such as for instance pyrophosphate beads, are actually on the market, but "light per salts" are not commercially available. Work is currently being done on such methods, but difficulties similar to those described above may appear. Diameters and weight/volume ratios of the beads must be within very definite limits otherwise separation of the different components will take place. Thick-walled and heavy beads must never be mixed with large thin-walled beads of low bulk density. Under certain conditions the globular shape of ingredients may actually facilitate separation.

In another process, the hot detergent beads are sprayed with a perborate solution inside a slanting rotating pipe. Solid perborate crystals have been jet-sprayed onto warm soft beads in an attempt to achieve a kind of cementation. Another suggestion calls for the spraying of perborate paste onto

Per salts can be added during spray drying of synthetic detergent slurry without undue loss of oxygen under careful proportioning and with right type of mechanical mixing equipment



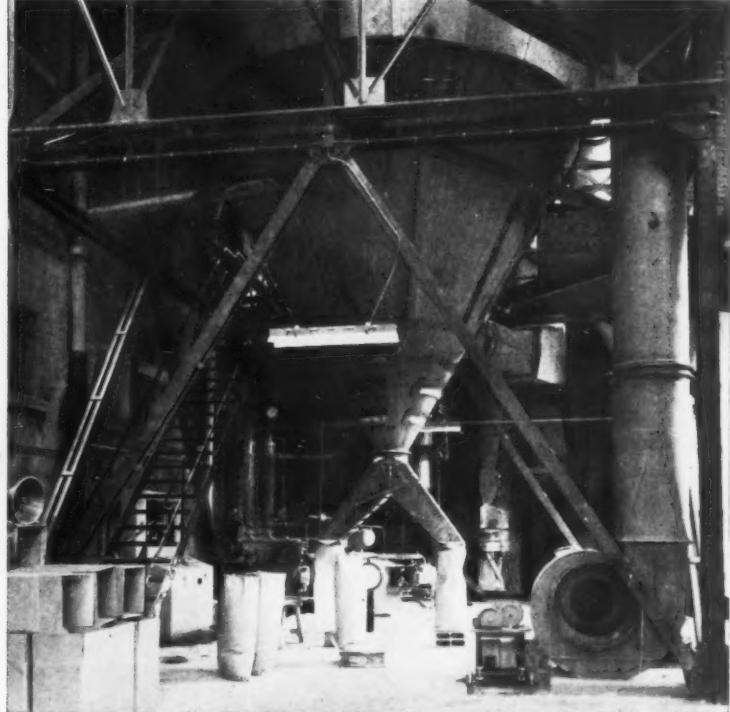
MECCANICHE MODERNE

CORSO SEMPIOLE, 51

BUSTO ARSIZIO (ITALY)



U. S. Sales Representatives:
AMERICAN ASSOCIATES
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"SABIZ" SPRAY DRYING PLANT

"BALESTRA" Patent

Manufacturing Characteristics

Atomization spray nozzles.
Adaptable to three modes of operation: parallel flow, countercurrent and mixed flow.
Product discharged at room temperature; eliminates agglomeration.
Free discharge of product without use of auxiliary equipment.
Direct or indirect utilization of gases obtained by the complete combustion of fuel oil or natural gas.
One main panel for control and operation.
Automatic continuous perfuming possible.
Can spray dry heat sensitive products.

Standard Outputs

From 250 Kgs. per hour up to 3000 Kgs. per hour and more, if required.
Efficient operation of the plant results in substantial savings.

Physical Characteristics of the Dried Products

From the same slurry, merely by adjusting some valves, it is possible to get:

Dried products such as hollow beads or fine powder.
Crystallized products such as beads or granules.

Adjustable to a wide range of specific gravities
from the same slurry. If used for synthetic detergents, this plant can be operated automatically in connection with our continuous sulfonation plant "SULFAN." Without any obligation to you, our technical staff, research laboratory and experience are at your disposal: let us solve your production problems.
Please don't hesitate to ask for references, analyses, offers, samples, visits to factories equipped with our plants, etc.

500 Kgs. per hour "SABIZ" Spray Drier in operation at **HUILERIES ANTONIN ROUX & SAVONNERIES J. B. PAUL — MARSIGLIA (FRANCE)**.

the detergent beads in a bubble tank. The perborate should, in this case, be combined with some adhesive substances. Interpolation of a granulating machine between spray tower and air cooling plant has been suggested to permit immediate mixing of the detergent beads with the perborate granules.

However, it is not known whether any of these suggested processing methods result in a satisfactory product, one consisting of beads that do not separate in storage and transit and having an equal content of available oxygen throughout the container.

The author has been questioned on numerous occasions concerning the feasibility of successfully spray drying perborates or detergents which contain per salts. According to various references in the literature, per compounds are decomposed by spraying, particularly in the presence of organic or inorganic detergent materials, such as alkalies. Therefore, perborates, according to these authorities, are usually added to the detergent product after spraying.

This commonly held view regarding the instability of per salts in the spraying process is only partly correct. Release of active oxygen in any heating or drying process depends directly on length of exposure. The faster the drying, the smaller the oxygen loss by disintegration. Other factors determining oxygen loss include water content, alkalinity, presence or absence of catalysts or stabilizers, avoidance of wall catalyses, etc.

Heating Possible

IT has been established that hydrogen peroxide can be heated to temperatures exceeding 100°, according to some references even to 500°, without disintegration. The presence of stabilizers is required. The patent literature reveals that finely particulated perborate can be safely exposed for a short time either to an air stream compressed to five atmospheres or to steam overheated to 220 to 250°. If this is done in a tower, the perborate will

take the form of a spray product. A process has been developed whereby per compounds, for instance, are made from soda and hydrogen peroxide in the presence of stabilizers either by compressed air spraying or by drying with a special ("Buehler" sic) apparatus. (Austrian patents 140,386 and 143,281, Oesterreichische Chemische Werke G.m.b.H., Vienna).

The manufacture of bleaching, rinsing, washing and cleaning agents incorporating oxygen releasing compounds such as sodium perborate in combination with inorganic and organic detergent materials is covered by Swiss patents 182,937 and 185,916, owned by Henkel & Cie. Use of colloidally soluble magnesium silicate in the manufacture of oxygen releasing washing and cleaning compounds is mentioned in Swiss patent 281,109, granted to the same firm. All the above patents point out that spraying is a practical method for the successful blending of dry and hydrous components.

An interesting process for the practically loss-free drying of perborate or of detergents containing the former is described in British patent 679,877, owned by Borax Consolidated, Ltd., London. This patent stipulates that in the final product the ratio of $\text{Na}_2\text{O} : \text{B}_2\text{O}_3$ should be less than 0.5 and preferably 0.35 or below. This ratio is established by the addition of boric acid or boric acid anhydride to the mixture of sodium borate and hydrogen peroxide. Anionics or non-ionics, such as long chain fatty alcohol sulfates, long chain alkyl aryl sulfonates, fatty acid amides or polyglycol ethers can be added to the slurry according to the Borax patent.

Production methods disclosed in the so-called Mertens patents are presumably used to make some of the oxygen releasing detergents in bead form currently on the market. The Mertens patents are owned by Procter & Gamble Co. in the United States and by Henkel & Cie. in France and Germany (U. S. patent 2,308,992, French patent 842,831,

and German patent 739,417).

The process covered by these patents calls for the spraying of hot detergent slurry in a hot or cold gas stream to form a hollow cone. The slurry does not contain per salts, and may be in the form of solution, suspension, or paste. At the same time, the per compounds in powder form—in combination with other powder form additives if desired—are injected into the upper central part of the hollow cone formed by the atomized detergent slurry. When the finely particulated slurry enters the chamber most of the water is evaporated. The sprayed detergent particles, when still damp, are hit by the solid per compound particles which are blown into the cone from the opposite direction. In this impact, aggregates are formed in which the detergent particles are "cemented" to the per compounds. The nozzles admitting the detergent and per compounds, respectively, may be at the top or bottom of the chamber, depending on whether the slurry is being sprayed upwards or downwards. However, the per compound must always be injected into the upper part of the cone formed by the slurry.

This procedure leads to an intimate contact between per salt and the damp detergent particles which may cause not only a "cementing" but an envelopment. The per compounds must be assumed to absorb some water and also to undergo a drying process. Spray temperature is 140°C. The method is said to protect the per compounds largely against disintegration. Stabilizers can, of course, be added. According to the patent, the process lends itself to the successful manufacture of washing compounds incorporating the usual inorganic additives and the important organic detergent materials such as soap, fatty alcohol sulfates, fatty acid condensation products, etc.

The manufacture of washing and cleaning compounds incorporating per compounds in uniform and stable form is the subject of Belgian patent 536,911, granted to

For Liquid Detergents . . .

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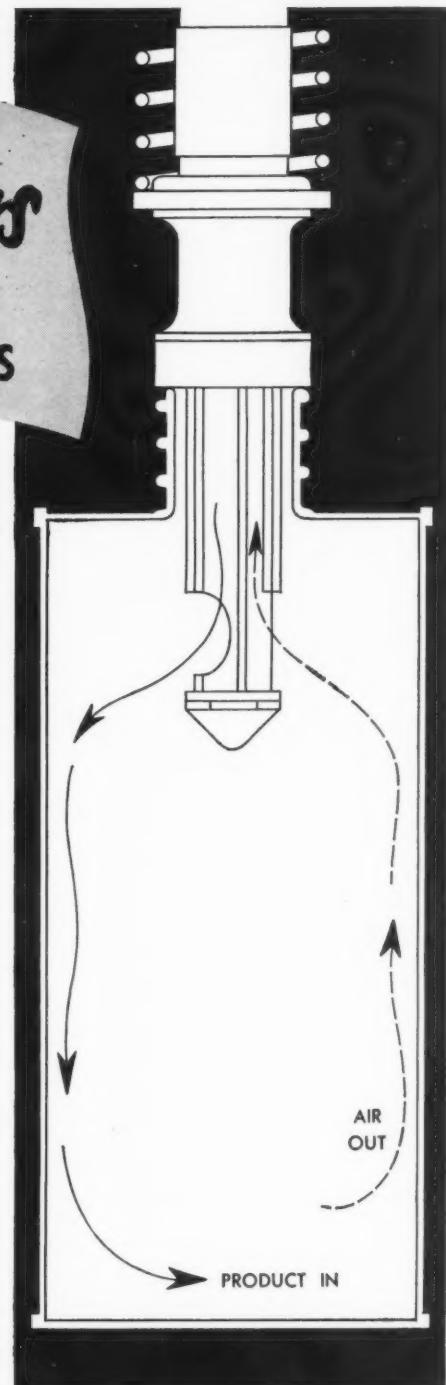
HORIX Non-Aerating Filling Valves eliminate the prime cause of heavy foam—the mixing of trapped air with the product.

The ease and simplicity with which this is accomplished is illustrated by flow diagram on the right—liquid port directs flow of product gently down one side of container, forcing air in container up opposite side and out through the air vent. The flow is by gravity, proven over the years as the finest most efficient lowest-unit-cost method for liquid filling.

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Write for latest illustrated Bulletin No. 156-S. It describes Horix entire line of liquid fillers for low or high speed production.



TYPICAL HORIX GRAVITY FILLER

Illustrated is the High Speed Model HA-28. Fillers available for any production speed.



Seifenfabrik Hochdorf A.G., Hochdorf, Switzerland. In this process, solutions or suspensions of oxygen releasing compounds are added to the other components of the detergent product. The slurry is then solidified by hot spraying. Application of high temperatures to the manufacture of hollow bead products is described in this comprehensive patent.

There is no shortage of suggestions for the spray drying of perborates alone or for the solidification of perborate together with other detergent materials to make washing and cleaning products. Naturally the detergent maker is anxious to reduce the loss of available oxygen to a minimum and this need is bound to prompt new variations.

It may be assumed that in the near future new patents in this field will disclose new details of processing methods and also show limitations encountered in the commercial use of such processes. Kurt Lindner in *Seifen-Oele-Fette-Wachse*, 1956, No. 20, pages 560-562.

Fatty Acid Award

George W. Preckshot, University of Minnesota, and Jay Nouri, E. I. du Pont de Nemours & Co., have won the 1956 Fatty Acid Award of the American Oil Chemists' Society, it was announced late in September. Sponsored by the Fatty Acid Producers' Council of the Association of American Soap & Glycerine Producers, Inc., the award of \$500 is made each year to recognize and encourage research leading to new or improved products based on fatty acid chemistry.

Dr. Preckshot's and Mr. Nouri's research has uncovered new data on solubilities and phase diagrams for oleic, palmitic, and stearic acids in ethylene dichloride, trichlorethylene, and carbon tetrachloride. Their work also suggests a cycling system which is said theoretically to produce pure palmitic and pure oleic from any mixture of the two.

The award winning research is important for fatty acid production, for laboratory preparation of pure fatty acids, and in the analysis of fats.

New Solvay Booklet

Detailed information on new equipment and simplified handling methods for storing bulk quantities of hydrogen peroxide is available in a new booklet offered by the Solvay Process Division of Allied Chemical & Dye Corp., 61 Broadway, New York 6, N.Y.

Entitled "Bulk Storage of Hydrogen Peroxide," the booklet includes data on construction and size of storage and measuring tanks, hose piping and air compressor systems, valves, pumps, and gaskets. It is illustrated with drawings of the equipment of air and transfer systems. Also included is a partial listing of names and addresses of equipment suppliers. Copies are available on request.

New Fats and Oils Bulletin

Plants and processes for the fats and oils industry are discussed in a 24-page, fully illustrated bulletin, recently published by the chemical plants division, Blaw-Knox Co., Pittsburgh, Pa. Among the processes covered in the folder, #2515, are extraction, refining, distillation, deodorizing, fat splitting, hydrogenation, and fatty-acid separation. In addition, numerous tables list the performance and economics of typical installations. Copies are available from the firm's chemical plants division, 180 North Ave., Chicago 1, Ill.

New Carbide Catalog

More than 335 organic chemicals are described in a new, 24-page catalog, recently issued by Carbide and Carbon Chemicals Co., New York. The bulletin also contains data on applications and lists physical properties in tabular form. An alphabetical index of the chemicals is also included.

Entitled, "Physical Proper-

ties of Carbide and Carbon Chemicals," the bulletin features 21 new products. "Sorbic," a fungistat for foods, and "Niatex," antistatic AG-2, are two of the new products described in the section on chemicals for special applications.

Copies of the catalog (F-6136), are available upon request from the company, 30 East 42nd St., New York 17, N.Y.

Best Selling Cleansers

"Ajax," "Windex," and "Drano" are top sellers in their respective product groups according to a survey reported recently by the *Farm Journal*, Philadelphia. Of 18 brands of powdered cleansers carried in 95 stores the top six sellers were "Ajax," "Bab-O," "Old Dutch," "Kitchen-Klenzer," "Bon Ami" powder, and "Swift's" cleanser in that order.

Interviewers found 16 different brands of window cleaners stocked among the 95 stores, but only two brands carried in more than four stores. These were "Windex" with 100 percent coverage, and "Glass Wax," which fell only one store short of 100 percent coverage.

Drain cleaners found in stock included 20 different brands. "Drano" was in first place in 95 stores, "Sani-Flush" second in 92 stores. However, grocers reported "Sani-Flush" their best seller, with "Drano" running a close second, and "Vanish" in third place.

ADM Sales Changes

Archer Daniels-Midland Co., Minneapolis, Minn., recently announced the appointment of James H. Kane as assistant regional sales manager for New York and New England.

Mr. Kane, who has been New York district sales manager of the chemical products division since 1950, will be responsible to Paul McClay, assistant vice-president in charge of sales for the firm's New York sales office and six Atlantic seaboard states. Mr. Kane joined ADM in 1934.

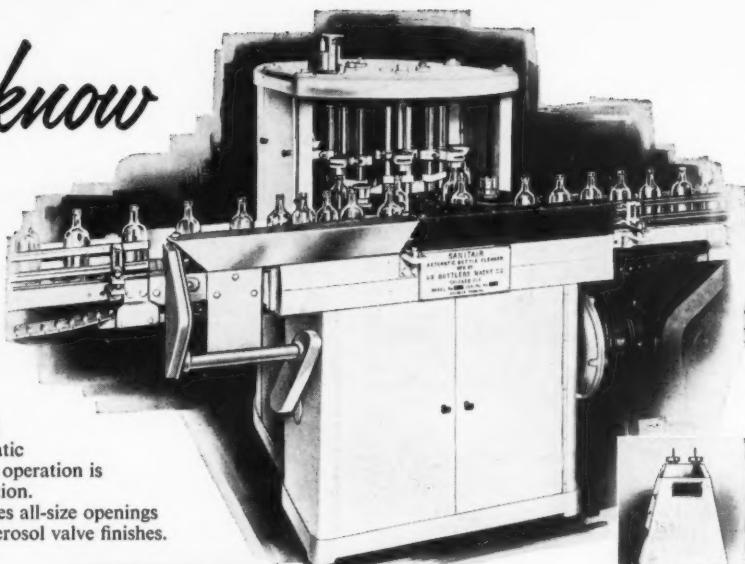
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Book Reviews

Wool Wax, Curse and Asset

"*Wool Wax Chemistry and Technology*" by E. V. Truter, University of Leeds, England. Interscience Publishers Inc., New York, 1956, 368 pages, $6\frac{1}{4}$ inches by ten inches, price \$8.75. This book is claimed to be the first critical and comprehensive survey of existing knowledge about the co-products of the fleece, namely wool-wax and suint. More than 600 references are quoted. The work covers occurrence; principles and methods of extraction; refining and chemical processing; chemical constitution; extraction of important components. There is a chapter on uses of wool wax and its derivatives in such specialty products as rust preventives, superfatted soaps and cosmetics.

—★—

Wax Technology Up-to-Date

"*The Chemistry and Technology of Waxes*," second edition, by Albin H. Warth, formerly chemical director, Crown Cork & Seal Co., Baltimore. Reinhold Publishing Corp., New York, 1956, 940 pages, six inches by $9\frac{1}{4}$ inches, cloth bound, price \$18. The first edition of Warth's classic text appeared in 1947 on 519 pages. The volume under review has 940 pages, an indication of the vast amount of additional and recently developed knowledge incorporated in this revised edition. A new chapter on "commercial modified, blended, and compounded waxes" has been added which deals with such comparatively new types as silicone and wax compositions, emulsifiable polyethylene waxes, etc. Our knowledge of the chemical constitution of natural waxes such as carnauba, beeswax and wool-wax has advanced. These advances are included in the chapter dealing with natural waxes, which has grown to almost twice its former size. The use of waxes in the arts and industries is exhaustively treated in chapter ten. Actually all chapters of

the book have been greatly enlarged and much new material has been added to the table of physical constants given in the appendix. Compounding of waxes is the subject of a brief addendum. An index of authors and an extensive and well arranged subject index are appended.

Like its predecessor, this second edition of Warth's text should prove an indispensable aid to manufacturers and formulators, of a vast range of specialties.

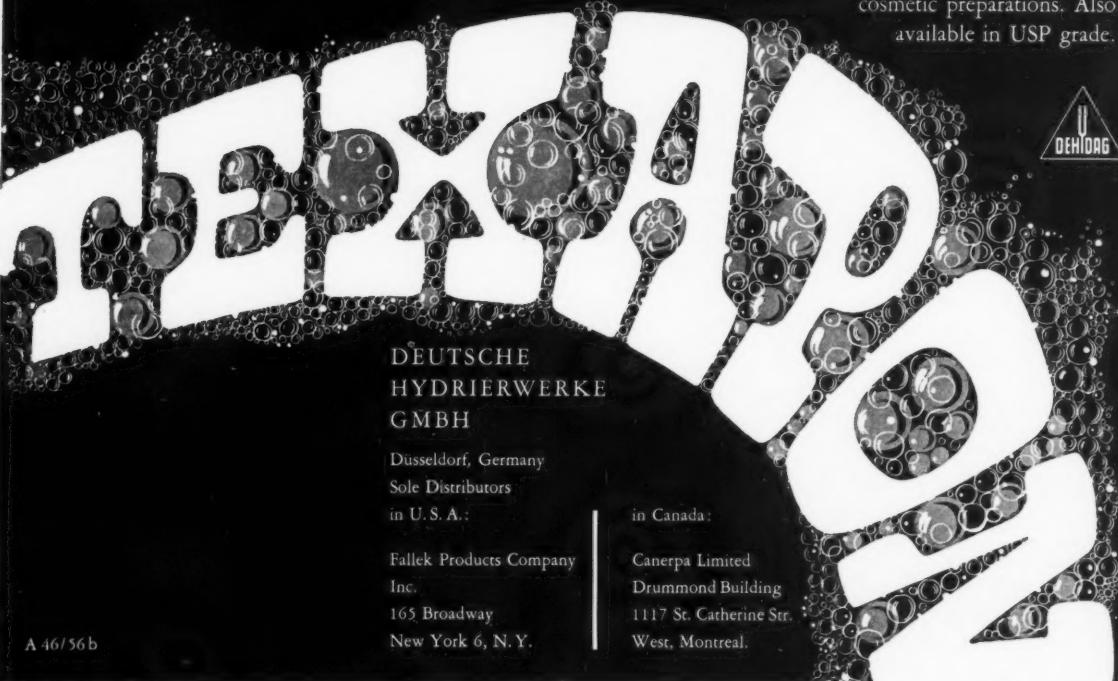
Diamond Names Rex

Appointment of David J. Rex to the newly-created position of process engineer for the silicate, detergent, calcium division of Diamond Alkali, Co., Cleveland, was announced recently.



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NEW Patents

The data listed below is only a brief review of recent patents pertinent to the readers and subscribers of this publication. Complete copies may be obtained by writing to the publisher of this magazine, Mac Nair-Dorland Co., 254 W. 31st Street, New York, 1, N. Y., and remitting 50c for each copy desired. For orders received from outside of the United States the cost will be \$1.00 per copy.

No. 2,761,805. Synergistic Insecticidal Compositions of Benzene Hexachloride and a Terpene Hydrocarbon, patented by Pedro Marron Huidobro and Juan Nebrera Escobar, Madrid, Spain. An insecticidal composition is described consisting essentially of benzene hexachloride which has been crystallized from petroleum hydrocarbon, then saturated with but not dissolved in terpene hydrocarbon corresponding to the formula $C_{n_1}H_{m_1}$, and then exposed to the oxidizing action of atmospheric oxygen, and an insecticide carrier, said terpene hydrocarbon having been obtained by treating essence of turpentine with sulfuric acid, removing tars and impurities, and neutralizing the so-obtained terpene hydrocarbon.

No. 2,761,774. Low Volatility Herbicidal Compositions, patented by William R. Davis, Aliquippa, Pa., assignor to Pittsburgh Coke & Chemical Co., Pittsburgh, Pa. As a new herbicidal mixture of esters, the patent discloses the mixture of esters of an aryloxyacetic acid selected from the group consisting of phenoxyacetic acid, 2-methylphenoxyacetic acid, naphthoxyacetic acid and halogenated derivatives thereof, with a mixture comprising primary normal saturated C_7 , C_8 and C_9 alcohols and the 2-methyl isomers thereof said mixture including substantial amounts of each of the C_7 , C_8 and C_9 alcohols.

No. 2,763,588. Fungicidal Compositions of N-Phenyl Mononitrophthalamic Acids and Derivatives Thereof and Method of Applying to Plants, patented by George E. O'Brien, Bethany, Allen E. Smith, Oxford, and Adelaide Bornmann, New Haven, Conn., assignors to United States Rubber Co., New York, N. Y. A fungicidal composition is covered comprising a compound selected from the group consisting of N-phenyl-mononitrophthalamic acids and N-monosubstituted -phenyl - mononitrophthalamic acids in which the substituent in the phenyl group attached to the nitrogen group consisting of chloro, bromo, nitro and hydroxy radicals and alkyl

radicals having 1 to 5 carbon atoms, the nitrophthalamic group being unsubstituted except by a single nitro radical, and the imides, and the alkali-metal, ammonium, amine, copper, zinc, iron, lead, aluminum and calcium salts, and the methyl, ethyl, isopropyl, n-amyl, cyclohexyl, polyoxyethylene-ethyl, 2-phenoxyethyl, 2-chloroethyl, benzyl and phenyl esters of said acids, and a fungicidal adjuvant therefor, said adjuvant comprising a surface-active wetting agent.

No. 2,761,773. Herbicidal Compositions, patented by William R. Davis, Aliquippa, Pa., assignor to Pittsburgh Coke & Chemical Co., Pittsburgh, Pa. The patent introduces as a new herbicidal mixture of esters, the mixture of esters of an aryloxyacetic acid selected from the group consisting of phenoxyacetic acid, 2-methylphenoxyacetic acid, naphthoxyacetic acid and halogenated derivatives thereof, with a mixture comprising primary saturated decyl alcohols containing a major proportion of trimethyl heptanol said mixture including substantial amounts of a plurality of the trimethyl heptanols.

No. 2,762,697. N-(Alkylmercaptoalkyl) Polyamine Herbicides, patented by Edward L. Doerr, Dayton, Ohio, assignor to Monsanto Chemical Co., St. Louis, Mo. This patent teaches a method of destroying undesirable plants which comprises applying to said plants a toxic quantity of a herbicidal composition containing as the active ingredient a compound having the general formula:



Z

in which R is an alkyl radical of from 6 to 18 carbon atoms, Z is selected from the class consisting of hydrogen and the methyl radical, n is an integer from 2 to 3 and m is a number of from 0 to 2, inclusive.

No. 2,764,479. Herbicides, patented by Everett E. Gilbert, Morris County, N. J., assignor to Allied Chemical & Dye Corp., New York, N. Y. Described is a herbicidal composition comprising a member of the group consisting of hexachloroacetone, pentachloroacetone and mixtures thereof in a hydrocarbon oil as dispersion medium, said member being present in phytotoxic concentration.

No. 2,763,618. Whitening and Brightening Wash and Rinse Powder Composition, patented by Palmer G. Hendrix, Hickory, N. C., assignor to Pro-Nyl Chemicals, Inc., Hickory, N. C. The patent covers a powdered whitening and brightening rinse composition for synthetic textile goods comprising crystals of anhydrous sodium sulfate carrying a from-solution-deposited film of an organic optical brightener, a mineral acid of 32% to 94% strength, and an organic solvent for the brightener from the group consisting of lower aliphatic alcohols

and lower alkyl ketones and esters, said sodium sulfate being insoluble in said solvent, said brightener being selected from the group consisting of p. diethyl amino coumarin and p. dimethyl amino- β -methyl coumarin and said ingredients being present in the following proportions sufficient to total 100%: sodium sulfate—65% to 99.15%, brightener—0.5% to 20% acid—0.1% to 10%, and solvent—0.25% to 5%.

In addition to the above claim the patent describes a powdered composite detergent and whitening and brightening composition for synthetic textile goods comprising a solid detergent admixed with a water-soluble inorganic salt whose crystals carry a from-solution deposited film of an organic optical brightener, a mineral acid of 32% to 94% strength and an organic solvent for the brightener from the group consisting of lower aliphatic alcohols and lower alkyl ketones and esters, said salt being insoluble in said solvent, said brightener being selected from the group consisting of p. diethyl amino coumarin and p. dimethyl amino- β -methyl coumarin and said ingredients being present in the following proportions sufficient to total 100%: detergent—1% to 98%, salt—1% to 98%, brightener—0.1% to 6%, acid—0.1% to 10% and solvent—0.25% to 5%.

No. 2,763,579. Process for Impregnating Wood with an Insecticide and the Resultant Product, patented by Wilhelm Schulenburg, Frankfurt am Main, Germany, assignor to Deutsche Gold-und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany. This patent teaches a process for rendering wood more resistant to attack by insects and fungi which comprises impregnating wood with a solution of an incompletely condensed resin obtained by condensation of at least one aldehyde selected from the group consisting of formaldehyde, paraformaldehyde and acrolein with a condensable nitrogen containing compound selected from the group consisting of urea, thiourea, guanidine, dicyandiamide and melamine and with a solution of thiocyanate of zinc.

No. 2,763,698. Production of DDT, patented by Hugo Stange, Niagara Falls, N. Y., assignor to Olin Mathieson Chemical Corp., a corporation of Virginia. Patent is an improvement in the production of DDT by chlorinating acetaldehyde to produce crude chloral containing water, dehydrating said crude chloral, and condensing the dehydrated chloral with an excess of chlorobenzene in the presence of sulfuric acid at a temperature of 0° to 40°C. to produce DDT. The improvement comprises separating and recovering waste sulfuric acid containing chlorobenzene sulfonic acid from said DDT product, returning said recovered acids to the dehydrating step wherein said crude chloral is contacted with said waste sulfuric acid and chlorobenzene sulfonic acid to remove water from said crude chloral, separating said acids with absorbed water from the dehydrating step, treating the separated acids from said dehydrating step with

(Turn to Page 157)

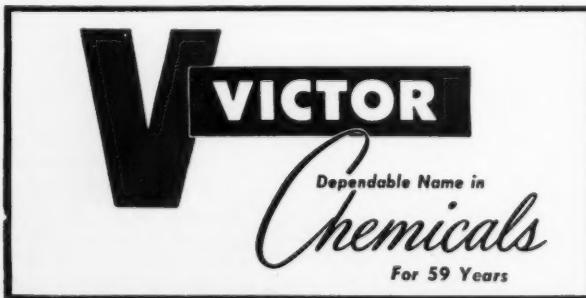
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Products and PROCESSES

Detergent Builders

Jellies or viscous solutions suitable for use as detergent builders, stabilizers, and other purposes comprise at least two different carbohydrate complexes or derivatives mixed at an elevated temperature in an aqueous medium. The carbohydrate complexes and derivatives may be selected from agar-agar, carragenin, CMC, or gum tragacanth. Mixing should be conducted at a temperature within the range of 45° to 105°C. British patent No. 750,126, MacLeans, Ltd., Brentford, Middlesex.

—★—

Soap Cooling in Vacuo

Hot liquid soap is passed via a suitable pipeline or pipes through a vessel which is in a state of vacuum. A liquid cooling medium, which may be water, is sprayed or atomized into the vessel. The cooling liquid is evaporated at a low temperature consequent upon the partial vacuum in the vessel and acts effectively to extract heat from the pipes and from the soap contained therein. Efficiency and economy is claimed for this apparatus for cooling liquid soap. Brit. patent No. 756,635, Henry Simon, Ltd., Cheadle Heath, Stockport, England.

—★—

Solubility of Non-Ionics

The effect of detergents, electrolytes, and organic liquids on the cloud point of a non-ionic emulsifier of the alkylphenol/polyethylene oxide type, is described. Lowering of the cloud point in dilute aqueous solution by electrolyte is a linear function of the ionic strength. The observed salting-out effect for the alkali metal and multivalent cations is roughly in the order of decreasing ion hydration. Crystalline nonelectrolytes cause only slight cloud point changes. Nonpolar liquids and anionic detergents significantly raise the cloud point of the non-ionic emulsifiers. As the polarity

of the organic solubilize is increased by introduction of double bonds and more polar constituent groups, the increase in cloud point is less marked. Aromatics and polar aliphatics even cause the cloud point to be sharply decreased. The cloud points of mixtures of non-ionic emulsifiers lie intermediate between the cloud points of solutions of the pure components. W. N. Maclay in *Journ. of Colloid Sci.* 11, 272-85 (1956), through *J. Am. Oil Chem. Soc.*, vol. 33, p. 432.

—★—

Sterilizing Solution

A clear sterilizing solution for use on instruments is made from the following components: soap, a bactericidal phenol, and a salt of a carboxylic acid having the formula: $(HOOCR^1)_2N-R-N(R^1COOH_2)$. R^1 and R are divalent aliphatic residues, preferably ethylenediamine tetra acetic acid. Brit. patent No. 747,226, Schuelke and Mayr G.m.b.H., Germany.

—★—

New Cellulose Derivative

A new, ethyl-hydroxyethyl cellulose derivative, designed for use as a thickener, emulsifier, adhesive and binder in the detergent, pharmaceutical and cosmetic industries, was introduced recently by Gaston Johnston Corp., Long Island City, N. Y.

Trade named "Ethulose," the product is composed of white, compact, free-flowing granules, that are soluble in water of any temperature. It is available in viscosities of 20, 100, and 600 centipoises. Further information and price lists are available on request to the company, 24-64 45th St., Long Island City 3, N. Y.

—★—

NALCO Amines Available

National Aluminate Corp., Chicago, recently announced the commercial production of "Nalcamine," a group of cyclic tertiary amines of high molecular weight. Reacting on an equimolar basis,

the amines form cationic surface-active salts which can be utilized as emulsifiers, demulsifiers, dispersants, wetting agents, corrosion inhibitors, and solvent penetrants. The product, which is said to have excellent heat stability, is available in 420-pound drums. Further information and samples can be obtained from the company at 6216 West 66th Place, Chicago 38.

—★—

New Glyco Chemical

Monoethylol dimethyl hydantoin, a compound designed for use in the manufacture of starch, is being produced on a commercial basis by Glyco Products Co., New York, at its Williamsport, Pa., plant, it was announced recently.

The compound, a practically odorless white crystal, has a melting point above 110 degrees centigrade. It is soluble in water, methanol, and acetone. Consisting of 19 percent formaldehyde, it is recommended for use in cases where the odor of free formaldehyde is undesirable.

—★—

New State Cleaner

State Chemical Corp., New York, recently announced the development of a new product called "Safety Cleaner and Degreaser." An odorless formulation, in concentrated liquid form, it is designed, when mixed with water, to remove greases, oils, stains, and any foreign matter from all hard surfaces such as machinery, metal parts, tools, automotive equipment, oil tanks, trucks, conveyors and belts. The product is non-toxic, non-flammable and inhibited to prevent rust.

—★—

Cosmetics of the Future

A discussion of the future of the cosmetic industry, by George G. Kolar, president of the New York Chapter of the Society of Cosmetic Chemists, will highlight the organization's monthly meeting, to be held Nov. 28, at the Brass Rail Restaurant, New York. In his discourse, Mr. Kolar will give his impressions of the type of cosmetics the industry will be marketing and producing in the future.

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79

By E. G. Thomssen, Ph.D.

DURING a recent eight weeks' trip through eleven European countries I had the opportunity of visiting a number of plants and seeing how manufacturing operations are carried on. I also observed how products in which we are particularly interested were used. To do so I visited, when possible, steamship and railroad galleys, as well as restaurant kitchens. At readily available locations in hotels, public buildings, railroad stations and such buildings as national museums, I made it a point to be present during cleaning operations. In the course of these various visits I made written notes of what was seen with the idea in mind that these observations would be of interest to production men.

Anyone who follows this course abroad must conclude that we in America lead the world in output per employee in every direction except where exclusively hand work is performed. We are too impatient to excel in this respect. As to the method of use of sanitary chemicals, our cleaning operations are far beyond those in Europe. The quantity and variety of items in the United States necessary to cleanliness surpasses those of Europe. This is due mainly to our higher standards and the availability of mechanical devices of which there is an almost complete lack on the other side.

The substance of my notes will be briefly elaborated in discussing various countries visited.

In Southern Ireland there is practically no industry of any size. The largest plant I noted was the Guiness Stout Company in Dublin. There is activity in developing two large electric power plants with the hope that this move will stimulate industrial growth. One station will use water power, the other peat. Not only does this country lack

electric power but its man power is very short. It is stated that about 60,000 Irishmen immigrate to other countries every year and have done so for the last five years. The population is roughly three million. The emigrants are almost all between the ages of 20 and 40. The result is that the very old and the teenagers are used as working people. In the small plants I visited, boys of 14 were doing heavy work normally performed by men. Boys had to leave elementary school to help support their families. Ireland is really badly off from a production man's standpoint.

In England where I had spent five months installing a plant just before the last World War, I visited some old friends, erstwhile haunts and factory sections with which I was familiar. I lunched with F. V. Wells, who often writes for this periodical. He is very well informed regarding the detergent and sanitary chemical industry in most European countries, especially France and England. We had a long discussion in which we compared manufacture and uses of products abroad and here. I was surprised to learn that England and other countries are very far behind us in adopting advances in the chemical specialties field. Syndets are sold

quite generally all over Europe. One sees very few of the modern disinfectants displayed in shops. Mr. Wells informed me that just recently he had recommended a chemical engineer to a large English chemical house to investigate the aerosol market which is just taking hold there. The United Kingdom, however, is well aware that a large market may result in the aerosol field.

Some progressive American sanitary supply dealers, I was informed, are investigating the advisability of introducing American sanitation procedure and products to the British Isles. There is a fertile field here as sanitation abroad compares very poorly with our methods. Certain refinements we consider commonplace in public washrooms for example are lacking. The rooms are superficially clean but operable soap dispensers, paper towels and deodorizing blocks or germicide dispensers are scarce. A partly used small cake of soap and a communal roller towel are the usual facilities. Floor care in hotels and public buildings is carried out very crudely. The floors are washed by charwomen on their knees with a rag that is occasionally wet in a pail of water. They spread a dirty scum, instead of removing the soil. Floor waxes or floor dressings are almost never seen. Disinfectants are generally absent. Flies thrive in restaurants due to the absence of insecticides. The musty air in public places as well as in homes could be much improved with air fresheners but they are seldom used. The lack of mechanical appliances is quite pointed. About all one sees used are small vacuum cleaners and usually well worn brooms. Soap dispensers where seen are ineffective and usually out of order, filled with watery, poor quality liquid soap. No powdered soap dispensers were evident. These comments apply to conditions in the best grade hotels, stores, public show places and office buildings. Conditions are decidedly worse in lower grade places. Englishmen who visit America return home praising our sanitary condi-

Dr. E. G. Thomssen





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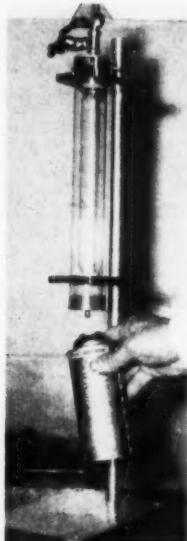
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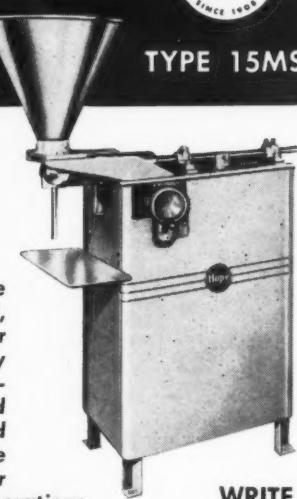


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tions yet little is done to improve their own.

Industrial plants in England have come a long way since pre World War II. They are built to afford laborers good working conditions, in fact are more attractive than their office buildings. The Slough District about twenty miles West of London, is a good example. It was just beginning to be developed when I last visited it in 1939. Some American firms were locating there then. Today one sees large plants, many with well known American names, on every side. The population of Slough has grown tremendously and surpasses many industrial areas in our country as to the attractiveness of the factory grounds, transportation facilities and modern factory architecture. It is one spot in Britain where the worship of the old does not exist. In other industrial sections one also observes attractive modern factories which have been recently erected.

In the Scandinavian countries there is a big housing shortage. To overcome this, mostly large blocks of apartment houses are being built by the civil authorities. Those wishing accommodations must make application to them. It takes as much as three years to rent a small apartment. These are meted out according to the order in which applications are received and the number of children per family. The applicant has no choice or selection. He must take what is assigned to him.

The building contractors are just about as efficient in erecting buildings as those at home. In some cases their operations are an improvement over ours. They have difficulty in obtaining labor and hence have imported workmen from the Mediterranean countries. The demand for building trade labor has caused a shortage of help in factories I was informed by several manufacturers in Sweden. Norway is not badly off since her industry is largely lumbering, and fishing. It was rather interesting to learn that in spite of the large Norwegian and Swedish shipping oper-

ations, practically all of their large ships are built in Italy.

In Denmark business is booming. While this country is predominantly agricultural, one observes rather large textile, metal and wood working establishments. The Danes are great beer drinkers and breweries are numerous. As a sidelight on this, Denmark prohibits the sale of carbonated beverages and the ever present Coca Cola signs are conspicuous by their absence. Packing houses are frequently seen. In the shops there is a scarcity of chemical specialties. Those encountered bore English manufacturers' names. As is well known, most of the manufacturing and marketing is carried out by co-

operatives. Even agriculture is pursued by this plan. Just as an example, dairy farmers are compelled to deliver all of their milk to a cooperative creamery. High milk standards are demanded as is the case not only with dairy products, but with hog raisers as well. All of the hogs going to packing houses must be of uniform weight and be of certain breeds. As a result, Danish food products on the whole are very high in quality.

(To be continued)

New Spraying Nozzle

A new flat spray nozzle, designed for heavy duty cooling and washing operations and for applications where a large flat spray is needed, has been developed by Spraying Systems Co., Bellwood, Ill., it was announced recently.

Tradename "2-U-Veejet," the nozzle ranges from 73 GPM at 15 psi to 330 GPM at 300 psi and comes in two types of spray angles. It is available in standard brass but can be supplied in other materials upon order. Further information can be obtained from the company at 3201 Randolph St., Bellwood, Ill.



Corrosion Proof Idler

TOY MANUFACTURING CO.

Pittsburgh, Pa., is now offering a free bulletin, 97-56, which describes its "Limberoller Idler," a new type idler. The unit is designed for conveying abrasive, sticky and corrosive materials. Among the advantages claimed are longer life and reduced maintenance costs. Made of pressure-molded Neoprene or rubber discs on a flexible steel cable. The idler uses only two bearings, which are isolated from the dirt zone.

New Ammonia Plant

SINCLAIR CHEMICALS, INC., an affiliate of Sinclair Refining Co., New York 21, is now making anhydrous and aqua ammonia available to middle western users at substantial savings on freight charges. The new Sinclair plant at Hammond, Ind., is centrally located and has the capacity to ship ammonia in any amount.

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MERCHANTS CHEMICAL CO., New York 17, N. Y., has strategically located sales offices, warehouses and stock points from which a large assortment of chemicals can be quickly shipped. Manufacturers of finished products find their service advantageous because a single call is all that is necessary for rapid, efficient delivery of a wide range of industrial chemicals. This reduces shipping costs, affords speedier delivery, cuts down on invoice paper work and is time saving.

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By John W. McCutcheon

A FEW weeks ago the Instrument Society of America held its annual Instrument-Automation Conference and Exhibit at the New York Coliseum. In view of the attention "automation" is getting today, some of the exhibits shown that may hold interest for the soap and detergent industry will be reviewed here.

In the first place, let us be frank about the exhibit: it was primarily "instruments" and secondarily "automation." Nearly everyone could talk fluently on servomechanisms but was very vague when it came to specific applications. As a typical example, one exhibitor actively soliciting business as an automation engineer was asked what type of mechanism his pint sized unit would use at the actual business end of a valve. The hedged answer came back—"well that would depend on the rate of flow, material, temperature, etc." Very sensible answer too! So we started stating conditions—vegetable oil at 50°C. through a two inch line at a rate of 25 gpm! Then we got the answer the writer had anticipated right along—"We generally depend on the manufacturer for suggestions." In other words: we supply the servomechanism, but you tell us how to use it!

The writer found there was quite a gap between instruments and their direct positive application as far as the automation show was concerned. There were very few exhibits, for example, where servomechanisms were actually coupled up with other manufacturer's equipment to produce a combined result. Yet, this is just what automation is. The writer feels that the show primarily was instrumentation with very very minor emphasis on "automation."

Another bothersome point brought out by talking with the



exhibitors was the fact that the man who stands between the instrument and its plant application is generally called a "system engineer." What a fancy name! Actually, why not call him by the title he has been using for years "consulting chemical engineer." Who is better qualified for the job?

Although the show covered a broad field and leaned heavily toward guided missile control, aircraft instrumentation and computation, many exhibits had a bearing on the chemical industry and held a potential interest for soap and detergent manufacturers. A few of these items will be described below. Before going into this, however, the writer recommends that manufacturers in our industry take note of these shows which are yearly events and send their top engineers to them. The next one is in Cleveland, September 9-13, 1957. The vast number of ingenious devices of all types, the quality of their manufacture and the intricacy and precision of their machined parts leaves one amazed.

U. S. Electrical Motors, Inc., showed their "Varidyne" multiple drive system for coupling one or a series of motors to increase or decrease their speeds in unison. The unit consists of a motor coupled to

an AC generator through a variable speed coupling which can alter the generator speed through a ratio of about 7.5/1 by means of a short control lever. Changing the speed of the generator alters the current frequency. The controlled motors, such as AC squirrel cage induction motors whose speed depends on frequency are thus controlled from one source. The system is simple, inexpensive and accurate for this purpose. The power loss through the conversion was not given, but would be small. Application of this device is simultaneous control of several motors, which might be driving conveyor systems leading from dual cartoning machines or feeding production lines where the slowing down of one unit would cause a production jam but where speeds must be varied on occasion. Quadruple milling of soap, for example, or the soap dryer and conveyor and preliminary plodder could be so connected.

Another interesting possibility, also shown by U. S. Motors, was the automatic control of the speed changer as a feed back in an automatic operation so that a proportioning arrangement for some chemical operation could be obtained. In the case illustrated by the above company a pneumatic cylinder "Conomotor" valve was used as an integral part of the "Varidyne." By proper servomechanism connection then, the rate of flow through a pump could be controlled by means of the motor speed.

Such a device would work well, for example, in the neutralization of acid waste water. In this case the "Varidyne" would power an alkali caustic pump. The cylinder "Conomotor" valve would be activated pneumatically by a pH recorder and controller. Of course, you could use an electrically operated "Conoflow" series "D" valve actuator controlled through the same pH controller and use a centrifugal pump on the caustic and let the pump run at constant speed. In the case of water treatment, it wouldn't much matter, but if the



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liquids were viscous or varied greatly in viscosity with temperature, then a positive flow pump plus the "Varidrive" system would be preferable. Incidentally the "Conoflow" valves were on exhibit also. They are made by Conoflow Corp., 2100 Arch Street, Philadelphia.

Another speed control device noted, was the "Reliance V & S" drive, manufactured by Reliance Electrical and Engineering Co., Cleveland. Here the principle of control is voltage and not frequency. The company makes four types of variable drives and we will start with Junior, the oldest and easiest. Unfortunately the company literature is so busy telling you what it does, that it forgets to tell you how it does it. However, the sales representative at the show was very helpful. Junior works on the principle utilized some years ago by makers of laboratory stirrers such as one made by Palo-Myers, Inc., New York. When alternating current is applied to a thyratron type tube, conduction occurs only on the positive half of the AC cycle and then only when the control grid's negative potential is sufficiently low. By changing the grid potential as by a small rheostat, the fraction of the positive conducting cycle that passes the tube can be varied from zero to full. By utilizing a pair of thytratrons, controlled full wave rectified current from AC is obtained. A DC motor harnessed to the output becomes a speed controllable unit. This Junior model is made in sizes ranging from $\frac{3}{4}$ to 3 HP for an 8:1 speed ratio. The control rheostat may be located anywhere, or could even be carried around on the end of a cable. Oh, yes, motors are reversible.

The larger sizes, including the model presented at the show, work as follows: a constant speed AC motor drives a variable voltage DC generator whose output is coupled to a DC motor. The voltage regulation of the DC motor is through a small thyratron controlled DC voltage on the exciter coils of the generator and is controlled in two ways, by manual set-

ting and by automatic regulation through a tachometer driven directly by the controlled motor. These controls are probably in series. In the demonstration at the show, the controlled motor was set up to 804 RPM by manual rheostat control of the thyratron output to the generator. A pump connected to the motor was thrown on full load by closing the output valve. The controlled motor speed dropped only 1 percent or to 795 RPM although the amperage on the motor doubled from 1.8 to 4.0. The principal advantage of this device over the "Varidrive" of U. S. Electric Motors is the fact that the motors are reversible and can be run almost constant speed from idle to full load. The drawback is the added equipment space and expense over the more simple "Varidyne." Reliance Electric also offers a "V & S" drive with a cation rectifier. In this case mercury tubes replace the AC motor-DC generator unit, so that the controller contains no moving parts. Such control units are offered up to 100 HP.

The writer feels that the soap and detergent industry could use the "Varidyne" units very well for general production line synchronization and the more versatile and controllable Reliance "V & S" drives in laboratory work and pilot plant equipment. For example, on motors operating a test cloth soiling machine, for multiple stirrers on an extraction process, or for motors driving pumps, where materials are to be proportioned through rate of flow. It should also be noted that while the "Varidyne" requires mechanical operation to vary the speed such as a pneumatically operated cylinder "Conomotor," the Reliance "V & S" drive requires only variation in an electrical voltage so that it lends itself very readily to servomechanism control.

Next month we hope to conclude our automation reports with reference to a micro-titrator, which counts the drops, a new type electronic numbering device, cleaning by ultrasonics and a flowmeter directly connected to a servo control.

Soap Perfuming

(From Page 38)

cord with the findings of Pickthall.

In brief, greater use could probably be made in soap perfumery of the stabler esters and particularly those that derive from alcohols which themselves have good odor value in soaps.

(To be Concluded)

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Nopco Names Ward

Nopco Chemical Co., Harrison, N. J. has appointed Dr. John E. Ward, to a newly created research position, it was announced recently. Formerly Dr. Ward was head of the firm's paper chemicals laboratory. He will be replaced by R. B. Porter.

At his new post Dr. Ward will be responsible for the development of project research programs for all of Nopco's industrial divisions. He will supervise the processing of industrial chemicals for detergents, cosmetics, and other products.

A graduate of the Institute of Paper Chemistry at Appleton, Wis., Dr. Ward has served with the company in a research capacity for five years.

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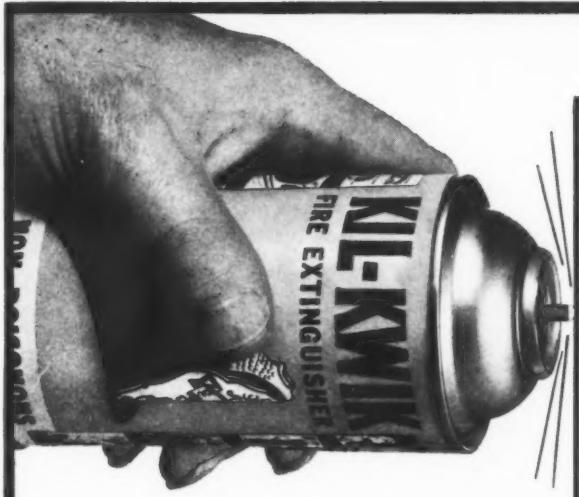
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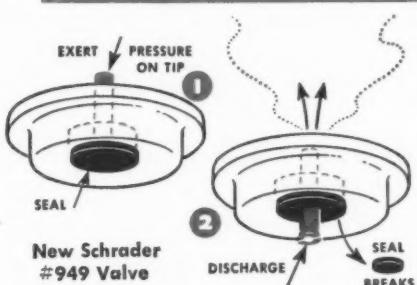
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In Vulcan Steel Posts

Two appointments in the sales department of Vulcan Steel Container Co., Birmingham, Ala.,



Floyd A. White

were announced recently by Gordon D. Zuck, president.

Floyd A. White, Jr., was named sales manager of the southeastern region and will be in charge of sales of pails and drums and supervise district sales offices and warehouses in Tennessee, Georgia, North and South Carolina, Virginia and Florida.

Charles B. Little was named sales manager of the southwestern region and will be responsible for sales and supervise district offices and warehouses in Louisiana, southern Mississippi, Texas, Arkansas and Oklahoma.

Both men will headquartered

Charles B. Little



at the company's main office and factory in Birmingham, Ala. The company manufactures steel pails and drums in sizes from one through 20-gallons for chemical, paint, food and petroleum products.

Rohde Crown P.A.

The appointment of Albert W. Rohde as director of purchasing of Crown Cork & Seal, Inc., Baltimore, was announced recently. In his new post, Mr. Rohde will be responsible for the establishment of a central corporate purchasing policy, standardization of purchasing procedure, and directing and coordinating the firm's over-all procurement program. He had served for the past two years as purchasing manager for the company's can division.

Crown Sales Course

Eleven new regional sales representatives of the crown and closure division of Crown Cork & Seal Co., Baltimore, have completed a comprehensive indoctrination and training course, it was announced recently. The course, which was given at the company's Baltimore headquarters, included sessions on product knowledge, service information, customer relations, and company history, policies, operating methods and future plans. Samuel V. Tuttas, division manager of sales, directed the program, while Richard W. Beeler, division manager of sales development took part in several of the sessions.

Sales representatives participating in the course and division district sales offices where they have been assigned are: C. V. Schmidt and Dale Howard, New Orleans; John J. Mohan and Dale L. Rife, Cincinnati; Don White and Halcon Robertson, Leeds, Ala.; W. B. Dennis, Orlando, Fla.; J. J. David, Philadelphia; Theodore R. Buttrick and Karl Zint, Detroit; and Robert Pfretzschner, St. Louis.

New Polyethylene Nozzle

A new fluid flow container with a dripless polyethylene nozzle, has been introduced by Continental Can Co., New York, it was announced recently.

The container is designed for liquid detergents and other corrosive products, the container features the polyethylene nozzle which permits an even flow and provides an abrupt, exacting cut-off when pour is completed. No solder is used anywhere in the construction of the can, which is enamel-lined to prevent corrosion. The side seam is cemented with thermo-plastic cement which permits complete wrap-around lithography. In addition, a resistant varnish is available to prevent any marring of the lithographed surface through spillage in filling or use. The containers are manufactured in 12, 16, 22, 32 ounce and half-gallon sizes. Nozzles come in colors to match closely decorative designs.

Improved Pouring Spout

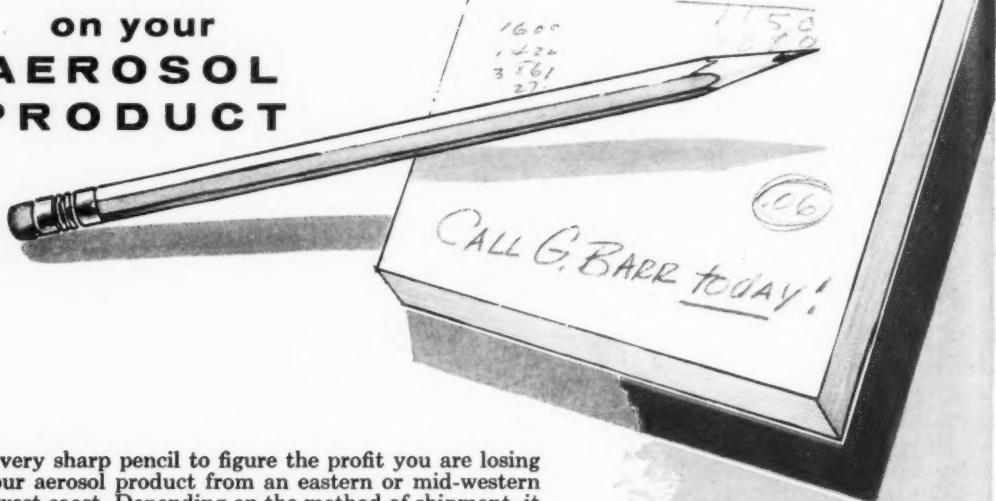
A new pouring spout for use with steel or fibre drums tilted by hydraulic lifts, has been developed by Sterling-Fleischman Co., Broomall, Pa., it was announced recently.

The spout, constructed of ten-gauge metal, is intended to facilitate the pouring of powder and other dry materials, and viscose plastics, by extending the pouring distance from drum into mixer or other receptacle.



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McCarthy In BDSA Post

Vern I. McCarthy, Jr., vice-president of Vulcan Containers, Inc., Bellwood, Ill., has been named to serve a six-month appointment as deputy director of containers of the container and packaging division of the Business and Defense Services Administration, Department of Commerce, Washington, D. C., it was announced recently by Charles F. Honeywell, BDSA administrator.

As deputy director, Mr. McCarthy will represent the entire American packaging and container industry in reflecting the over-all activities of the industry with the federal government. He also will participate in the development of long-range mobilization planning, industrial defense preparedness programs for the industry, in the event of a national emergency, and will work in the rendering of information, statistical, and business service aids to the industry.

After his six-months' assignment, Mr. McCarthy will be available to the government as an industrial reservist. At 29, he is believed to be the youngest executive ever to hold the post.

Goldsmith Names Peat

Jerry Goldsmith Associates, Baltimore distributors for the complete line of flexible packaging materials made by the Shellmar-Betner Division of Continental Can Co., New York, recently announced the appointment of William Peat as director. Mr. Peat succeeds Jerry Goldsmith who died earlier this year.

New Anchor Hocking Plant

Plans for the building of a new glass container plant in San Leandro, Calif., were announced last month by William V. Fisher, president of Anchor Hocking Glass Corp., Lancaster, O.

The plant, which will include a factory with two 150-ton furnaces and a warehouse, will manufacture a complete line of wide mouth and narrow neck glass

Vern I. McCarthy, Jr., (right), vice-president of Vulcan Containers, Inc., Bellwood, Ill., is shown being sworn in for his six months assignment with the Business and Defense Services Administration by Charles F. Honeywell, administrator of the BDSA. Mr. McCarthy will represent the entire American packaging and container industry in his capacity as Deputy Director of the Containers and Packaging Division BDSA.



containers for household chemicals, pharmaceuticals and related products.

— ★ —

Continental Sales Record

Sales and earnings of Continental Can Co., New York, reached an all-time high during the nine month period ended Sept. 30, it was announced last month by Gen Lucius D. Clay, board chairman.

Net sales for the first nine months of 1956 totaled \$590,276,000, an increase of 15.6 percent from the \$510,413,847 in the corresponding period of 1955. Net income for the nine months ended with September increased 28.3 percent to \$25,854,000, equal to share earnings of \$3.27, from \$20,149,299, and \$2.69, in the first nine months of last year. The net income total for the first three-quarters of 1956 also exceeded the company's peak annual income of \$24,172,000, reached in 1955.

In the third quarter of 1956, Continental reported total sales of \$234,333,000 as compared with \$204,366,248, in the third quarter of 1955. Net income rose to \$11,361,000, or \$1.44 per share, from \$9,859,834, or \$1.32 per share, for the similar three months last year.

General Clay said that the figures excluded sales and income of Hazel Atlas Glass Co., Wheeling, W. Va., net assets of which were acquired last Sept. 13 in exchange for 999,140 shares of common stock.

Resign Gair Posts

Hugh C. Laughlin, executive vice-president of Owens-Illinois Glass Co., Toledo, and Harry E. Collin, a director and member of O-I's executive committee, have resigned as directors and members of the executive committee of Robert Gair Co., New York, it was announced recently by George E. Dyke, president of Gair. The resignations followed the announcement by O-I of its merger with National Container Co., New York.

New Aerosol Valve Clincher

A new automatic aerosol valve clincher, designed to operate at speeds up to 300 cans per minute, has been introduced by Continental Filling Corp., Danville, Ill., contract aerosol loading firm, it was announced recently by Clarence F. Carter, president. The new machine provides uninterrupted clinching, without gaps between collett teeth, and reduces the possibility of future leaks from incomplete valve clinches or broken collett teeth segments. It was developed by J. Allen Reynolds, vice-president in charge of operations for Continental.

"This development allows a smoother, faster filling operation, which will greatly increase our plant capacity," Mr. Carter declared. "It will mean greater filling economy and speed of delivery than ever before."

According to Mr. Carter,
(Turn to Page 107)



Ball Brothers' Personalized Counsel can help you cut production costs!

Your Production Department has a three-fold responsibility: 1—to maintain the desired rate of output; 2—to insure uniform quality; 3—to hold down cost per unit. Each area has its problems . . . and its opportunities for improvement.

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What's New?



→
A new air freshener, designed to neutralize objectionable odors, was introduced last month by S. C. Johnson & Son, Inc., Racine, Wis. Called "Glade," the product comes in two scents, evergreen and blossom, and is available in both aerosol and wick-type containers. Retail price is 89 cents for the aerosol and 69 cents for the wick.



Two new products, a transparent glycerine soap and a pure white coco soap, were announced recently by Donat Soap Co., New York. Packaged in gift-boxes of three cakes, the soaps are designed for normal bathroom use. An abundant lather makes them suitable for shampooing. The transparent glycerine soap is honey-colored and has a pear-blossom aroma while the coco soap, made from pure edible coconut oil, is lilac scented.



Majestic Wax Co., Denver, Colo., recently announced that its new aerosol blackboard cleaner and eraser product, "Chalk-O," is now available for consumer use. Packaged in a 12-ounce can, it is said to clean and recondition blackboards quickly and thoroughly while controlling chalk dust.





New "Thylox," medicated shampoo, was announced recently by Shulton, Inc., New York. Designed for the treatment of dandruff, and oily and itchy scalp, the product contains sulphur, zinc sulfide, and salicylanilide. "Thylox," shampoo is non-toxic and comes in a six and one-quarter ounce bottle, designed for safe grip. Retail price is \$1.50. A six-piece unit containing other Shulton pharmaceuticals is available for display purposes.

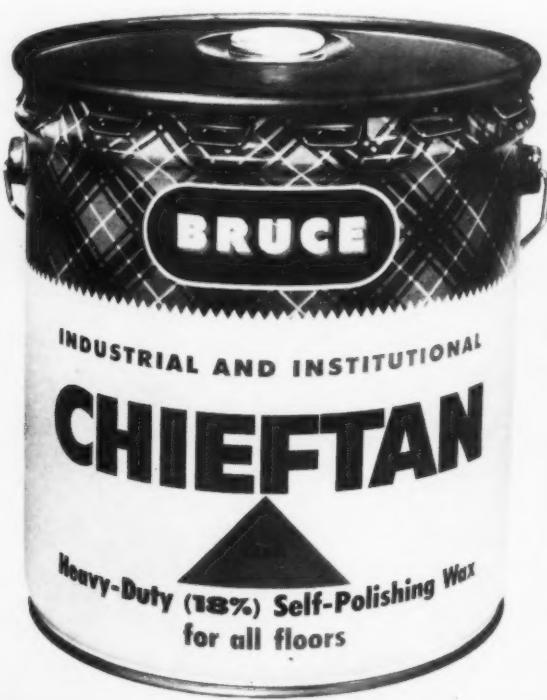


A new insecticide spray gun, announced last month by R. C. Can Co., St. Louis, is equipped with a new directional vent that is designed to spray at any angle. The sprayer, said to be clog-proof, has a removable 1½-inch top for refilling, and a wax-coated inner tube.

"Dri-z-all," an all-purpose oil and grease absorbent and deodorant, introduced last month by Diamond Head Oil Refining Co., Kearny, N. J., is designed for use on garage floors, steps, sidewalks, in garbage cans and in clothes closets. It is claimed to be anti-slip and non-combustible. Comes in 25-pound bag and a 16-ounce fibre can with metal ends.



A new heavy-duty, self-polishing wax, "Chieftan," announced last month by E. L. Bruce Co., Memphis, Tenn., is designed for use on all types of industrial and institutional floors. Containing 18 percent solids, the product is said to withstand repeated damp moppings and to be scuff-resistant.



Swing to True Hair Beauty

PIN IT

Lilt

PRELL

PRELL



A new corrugated floor display stand was introduced last month by Procter & Gamble Co., Cincinnati, to promote sales of its "Prell" shampoo, and "Pin-It," "Lilt" hair care products. A five-color display—rose, green, yellow, black and white, a trio of die-cut mobiles, and a P&G designed riser and cut-out, emphasize the company's "swing" theme. Giant display shelf accommodates supplies of all three featured products.



"Wink," a liquid detergent creme, designed for dish-washing and woolen, cotton, nylon and rayon fabrics, marketed by Wink Soap Co., Racine, Wisc., is packaged in a new non-drip container by American Can Co., New York. The container features a cemented side seam that permits all-around lithography, a plastic overcap and a plastic nozzle. A 12-ounce can retails for 39 cents.

"Sprayway Foot Spray," a new aerosol germicidal foot spray, designed to prevent athlete's foot and other fungus infections, was developed recently by Sprayway, Inc., Chicago. The product, which also helps control unpleasant odors associated with the feet is sprayed between the toes and into shoes. Retail price is \$1.50.



Alexander Chemical Co., Brooklyn, N. Y., has just announced "Alexo," a new concentrated floor cleaner and floor wax. The products can be utilized on floors of marble, terrazzo, ceramic tile, asphalt, rubber, vinyl, and linoleum. The cleaner is said to require no scrubbing and work efficiently in hard water while the wax is claimed to be anti-slip.



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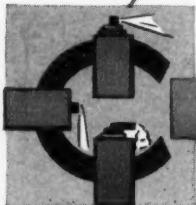


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PLANTS in Danville, Illinois, and Hobart, Indiana

such a development opens the way to exploration of speed-up techniques ahead of the clincher. Air or mechanically operated equipment available in the past generally has been limited to a maximum of 60 cans per minute. The new valve clincher has been in use at the Continental plant in Hobart, Ind., since Oct. 1. More of the new equipment is being manufactured and installed in all filling lines at the company's plants in both Hobart and Danville, Ill.

★

Gair Advances Three

Three managerial appointments in the Los Angeles Carton Division of Robert Gair Co., New York, were announced recently by H. G. Murphy, Pacific Coast sales manager. James M. Berendt has been named sales manager of retail cartons; Russell S. Aagaard becomes sales manager of Gair-Reynolds Foiline products; and Robert M. Weaver has been advanced to sales promotion manager.

Mr. Berendt joined Gair's Los Angeles staff in 1954 and has been associated with the paper box industry for 15 years. He had previously served in sales capacities with Frank Paper Products Co., Detroit, and Central Carton Co., Cincinnati.

Mr. Aagaard joined Gair's New York sales staff in 1955. He transferred to Los Angeles earlier this year after completing a course specializing in the sale of Foiline products.

Mr. Weaver formerly served in a sales capacity with the Angelus Paperbox Co., Los Angeles, and joined Gair when it acquired Angelus in January, 1954.

★

Continental Dividend

Directors of Continental Can Co., New York, recently declared a regular quarterly dividend of 45 cents per share on common stock, payable Dec. 15, to stockholders of record Dec. 3. Also declared was a regular quarterly dividend on the \$3.75 cumulative preferred stock of 93 1/4 cents per share, payable Jan. 2, 1957.

Study American Packaging

American packaging concepts and techniques will be introduced to the European market within the next few weeks, according to Franz Janta, packaging advisor to the Institute of Economic Promotion of the Austrian Federal Chamber of Commerce, Vienna.

Mr. Janta, one of a dozen Austrian industrialists to visit the United States last month, as part of an International Cooperation Administration project, said that neither packaging, as Americans know it, nor the concept of self service are generally known in Austria and that he planned to initiate programs in both directions upon returning home.

During a visit to the Ridgefield Park, N. J., folding box plant of United Board and Carton Corp., New York, the visiting industrialists expressed keen interest in the folding box carton, which they referred to as "selbstverkäufer," or the silent salesman. They praised it for its role in reducing the amount of labor required in the operation of a retail store. Mr. Janta made detailed notes of assembly-line technique of printing, cutting, stripping, gluing, packing and shipping of folding cartons.

Another visitor who praised American packaging methods was Dr. Hans Hofeneder, business manager of the Austrian Pulp and Pa-

per Processing Association, Vienna. "Even the package is packaged," he said in voicing his admiration for the concept of the carton as an advertising-sales agent as well as a container. He added that the Ridgefield Park unit, small by American standards, is twice as large as the principal Austrian carton plant, the Falpa Carton Works in Vienna.

Mr. Janta said that many American packaging materials, including folding cartons, will be on display for European businessmen next March at the international packaging exposition, to be sponsored by the Federal Chamber of Commerce at Vienna.

★

Precision Wins Patent Suit

A patent infringement suit filed by Precision Valve Corp., Yonkers, N. Y., against Seaquist Co., Cary, Ill., has been settled by Seaquist's alleged admission of the infringement of Precision's basic valve patent. Under the agreement settling the litigation, continued manufacture of the alleged infringing valve by Seaquist is prohibited except as permitted by Precision. Also substantial royalties are to be paid by Seaquist and numerous restrictions placed on its future sale of valves. Full information regarding the agreement can be obtained from Precision, 700 Nepperhan Ave., Yonkers 3, N. Y.

Operations of folding carton machinery are explained to Friedrich Konwallin, head of Viennese paper processing firm, (left) by Leon Densen, vice-president of United Board and Carton Corp., when Konwallin and other Austrian visitors on ICA tour visited Ridgefield Park, N. J. plant.



Gair Sales Increase

Sales and earnings of Robert Gair Co., New York, showed a substantial increase during the nine month period ended Sept. 30, it was announced late last month by George E. Dyke, president. Net sales for the first nine months totaled \$129,064,983, as compared with \$118,449,822, in the corresponding period of 1955. Net income for the first nine months ended with September increased to

\$7,713,808, equal to share earnings of \$2.31, up from \$6,749,459 and \$2.02, in the first nine months of last year.

In the third quarter of 1956, Gair reported total sales of \$42,758,631, as compared with \$40,961,999, in the third quarter of 1955.

— ★ —

Continental Names Wojtul

Peter P. Wojtul has been named vice-president of the fibre drum division of Continental Can



Peter P. Wojtul

Co., New York, effective Jan. 1, 1957, it was announced late last month by General Lucius D. Clay, chairman. Mr. Wojtul, who is currently vice-president in charge of sales, will headquartered at the fibre drum division's offices in Van Wert, O. He replaces Carl E. Eggers who is retiring after 25 years with Continental.

— ★ —

Vulcan Appoints Sampson

Charles D. Sampson has been appointed sales representative of the steel pail and tin can divisions of Vulcan Container Corp., Bellwood, Ill., it was announced recently by Herbert B. Scharbach, vice-president of sales. Mr. Sampson's sales area will include Cincinnati, Dayton, and all of southern Ohio. In addition, he will service southeastern Indiana, northern Kentucky, and northern Virginia. Mr. Sampson is a graduate of the University of Cincinnati.

Charles D. Sampson



JOHN C.

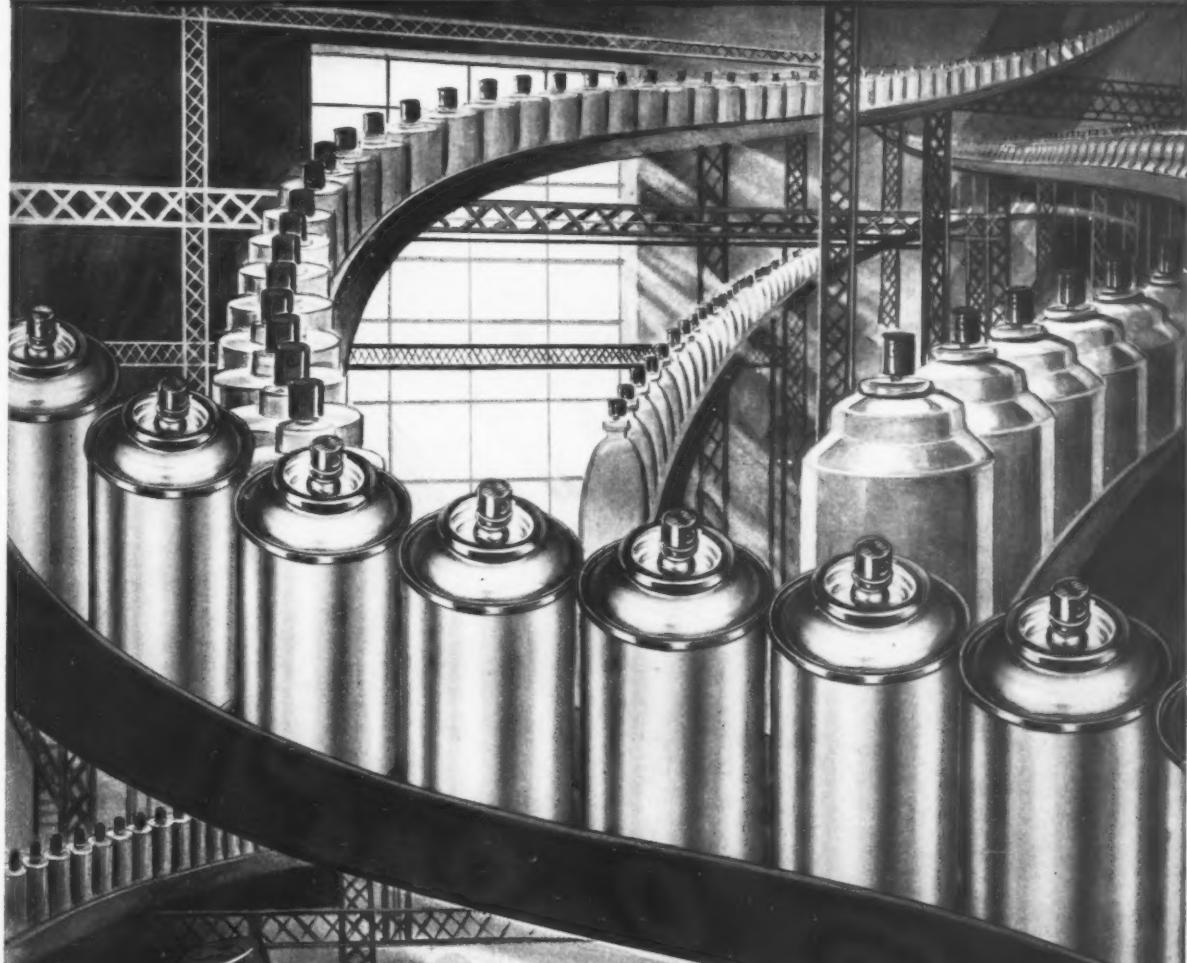


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	Powders		Room deodorants
Insecticides		Pharmaceuticals	
	Paints and varnishes		Fixatives
			Shaving Creams



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NEW Trade Marks

THE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12(a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of \$25 must accompany notice of opposition.

Mira-Foam—This for shampoo known as creme shampoo. Filed Mar. 9, 1956, by Alvin Lurie, doing business as Nyval Laboratories, Chicago. Claims use since January, 1956.

Saturol—This for a solvent cleaner. Filed Jan. 5, 1956, by Oakite Products, Inc., New York City. Claims use since Dec. 26, 1953.

Golden Six Spray—This for glass cleaning preparations. Filed Dec. 8, 1955, by Harry J. Tyson, doing business as Deutsche Industrie Bavaria, Denver. Claims use since Nov. 1, 1955.

Super-X—This for granulated skin cleanser. Filed Apr. 10, 1953, by G. H. Packwood Mfg. Co., St. Louis. Claims use since Jan. 15, 1932.

Robin Hood—This for soap and baby kit comprising baby soap. Filed Aug. 3, 1955, by Johnson & Johnson, New Brunswick, N. J. Claims use since July 27, 1955.

Lexo—This for general purpose soap cleaner. Filed Dec. 19, 1955, by Alex B. Lakoduk, doing business as Lexo Cleaner Co., Minot, N. Dak. Claims use since Nov. 3, 1955.

Lan-O-Wipe—This for all-purpose cleansing compound. Filed Jan. 17, 1956, by Lan-O-Sheen, Inc., St. Paul, Minn. Claims use since Dec. 20, 1955.

H-400—This for chemical scale remover. Filed Mar. 12, 1956, by Bull & Roberts, Inc., New York City. Claims use since Oct. 14, 1954.

Bryko—This for liquid cleaner composition sold primarily to food processing industries. Filed Nov. 15, 1954, by Pennsylvania Salt Mfg. Co., Philadelphia. Claims use since May 5, 1954.

Self-Klene—This for cleaning preparation for tanks, boilers, and the like. Filed June 20, 1955, by New Process Chemical Co., San Francisco. Claims use since May 6, 1955.

Blotto—This for spot removing compound. Filed Oct. 20, 1955, by Bojax Industries, Selma, Calif. Claims use since Aug. 10, 1955.

Predoo Shampoo—This for hair shampoo. Filed Dec. 14, 1955, by Charles A. Crete, doing business as Country Drug Products, Marysville, Calif. Claims use since on or about Aug. 5, 1954.

Kleem—This for sponges containing a detergent for cleaning rugs, furniture, automobiles, and the like. Filed Jan. 3, 1956, by U. S. Sponge

Corp., New York City. Claims use since Nov. 7, 1955.

Nod—This for soap. Filed Mar. 20, 1956, by Armour & Co., Chicago. Claims use since Feb. 24, 1956.

M B—This for cleaners for white side wall tires. Filed Mar. 26, 1956, by Moffett & Baumgartner, San Rafael, Calif. Claims use since Dec. 14, 1955.

Oven magic—This for preparation for cleaning ovens. Filed Mar. 27, 1956, by Rite Products Co., doing business as Proven Products Co., San Jose, Calif. Claims use since Oct. 26, 1955.

Mink—This for floor waxes, floor finishes, furniture polishes. Filed Mar. 14, 1955, by Bengal Co., New York City. Claims use since Jan. 6, 1949, on floor waxes.

Mink—This for floor waxes, furniture polishes and floor finishes. Filed Mar. 14, 1955 by Bengal Co., New York City. Claims use since Jan. 6, 1949, on floor waxes.

Pantaloons—This for cleaning and polishing composition for floors, furniture and automobiles. Filed Feb. 27, 1956 by Cellowax Co., Baltimore. Claims use since Nov. 1, 1955.

Safe-Tex—This for wax for tile flooring. Filed Mar. 7, 1956 by Flintkote Co., New York City. Claims use since in or about May 1952.

Sunlight—This for bleach water, coal tar and pine oil disinfectants, and paradichlorobenzene. Filed Nov. 23, 1955 by Sunlight Chemical Corp., Phillipsdale, R. I. Claims first use in 1919 on bleach water.

Bruce—This for insecticides. Filed Dec. 19, 1955 by E. L. Bruce Co., Memphis. Claims use since Nov. 1, 1928.

Armour H D—This for hydraulic brake fluid. Filed Dec. 22, 1955 by Power Petroleum Products, Dallas. Claims use since Nov. 25, 1955.

Silver Sheeld—This for anti-tarnish spray to be applied to silverware and other metalware. Filed Mar. 9, 1956 by Cecil W. Pollack, doing business as The Manhattan Silver Center, New York City. Claims use since Mar. 3, 1956. Subj. to Intf. with SN 9,889.

Silver Shield—This for anti-tarnish spray. Filed June 8, 1956 by Quality Chemical Products Corp., Forest Park, Ill. Claims use since Jan. 12, 1956. Subj. to Intf. with SN 4,230.

touch-up!—This for hydroxyl spotting agent for dry stain removal. Filed Dec. 20, 1955 by John P. Lynch Company of San Francisco, Calif. Claims use since Nov. 25, 1955.

Duz—This for sudsing cleaner, cleanser, and detergent. Filed Mar. 30, 1956 by Procter & Gamble Co., Cincinnati. Claims use since Nov. 3, 1919.

Atcosol, Atcosyn, Atco Fix, Atcetox, Atcopen, Atcosoft, Atcopon, Atcolene—These for detergents having wetting and surface active properties. Filed July 5, 1955 by Metro-Atlantic, Inc., Centredale, R. I. Claims use since Sept. 1, 1940, on all.

Sun Bright—This for chrome polish. Filed Jan. 19, 1956 by An-

thon E. Lavett, doing business as Sun-Bright Products Mfg. Co., Pacoima, Calif. Claims use since Nov. 7, 1955.

Old World—This for furniture polish. Filed Mar. 19, 1956 by Baker Furniture Inc., Holland, Mich. Claims use since July 1, 1934.

"Barkeeper's Friend"—This for all purpose scouring cleanser. Filed Jan. 23, 1956 by Gisler Polish, Inc., Indianapolis. Claims use since 1887.

Kellogg's—This for household insecticides, and room deodorant and sanitizer. Filed Nov. 7, 1955 by W. C. Jeffries, doing business as Kellogg's Insecticide Co., Los Angeles. Claims use since June 15, 1901, on ant paste.

T-H—This for herbicides, insecticides, fungicides, rodenticides, fumigants, and disinfectants. Filed Dec. 1, 1955 by Thompson-Hayward Chemical Co., Kansas City, Mo. Claims use since March 1933.

Multi-Power—This for detergent in powdered form for general cleaning purposes. Filed July 11, 1955 by Klenzade Products, Inc., Beloit, Wisc. Claims use since July 11, 1955.

Emmi Pac—This for shampoo pads containing soap. Filed Nov. 1, 1955 by Emmi Products Co., Chicago. Claims use since June 27, 1955.

Delve—This for washing and mothproofing compound. Filed Apr. 5, 1956 by Judson-Dunaway Corp., Dover, N. H. Claims use since Mar. 22, 1956.

Kumar Kleenar—This for chemical cleaning compound having incidental properties as a germicide, deodorant, and disinfectant. Filed Feb. 16, 1956 by Kumar Kompany, Inc., Thomasville, Ga. Claims use since Aug. 17, 1937.

Sher-Will-Clean—This for paint solvent for cleaning enameled and lacquered surfaces preparatory to refinishing. Filed Feb. 1, 1956 by Sherwin-Williams Co., Cleveland. Claims use since Dec. 2, 1935.

Silver-nu—This for silver polish. Filed July 19, 1955 by Walter Ratner, doing business as Silver-Nu Co., Chicago. Claims use since Feb. 9, 1955.

Klear-Shield—This for glass cleaning preparation. Filed May 16, 1955 by Gulf Oil Corp., Pittsburgh. Claims use since on or about Apr. 26, 1935.

Chemco—This for powder for cleaning and lubricating boilers and hot water tanks internally. Filed July 22, 1955 by Earl Boiko, doing business as Chemco Distributing Co., Chicago. Claims use since Nov. 1, 1929.

Ves-Phene—This for germicidal detergents. Filed Apr. 5, 1956 by Vestal Laboratories, Inc., St. Louis. Claims use since Feb. 1, 1956.

"Tampo"—This for non-flammable general spot remover used in commercial dry cleaning. Filed Sept. 29, 1955 by William Webb Kimball, doing business as Goodwin's Cleaners, Waco, Tex. Claims use since July 15, 1955.

Afta—This for cleaning solvents for fabrics. Filed Feb. 3, 1955 by Afta Solvents Corp., New York City. Claims use since on or about Jan. 1, 1928.

Kem-i-Kal—This for waterless soap hand cleansers, washing pow-

(Turn to Page 157)



controlled packaging*



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PRESSURE PACKAGING

THE long-talked-about promotion plans of those C. S. M. A. members in the aerosol business appear to be shifting from low to second gear, with plans progressing to the point in the last month where weekly meetings are being held by a steering committee whose goal is to kick off the program by 1957.

Fred Lodes, chairman of the planning group, presented a general outline of the program—confined in the beginning, at least, to publicity and public relations—to the C. S. M. A. board of governors at their fall meeting in Osterville, Mass., and received that group's official blessing to proceed and solicit funds. Minimum goal, so far as funds are concerned, amounts to \$100,000 for a two-year operation.

Lodes' committee has been busily engaged for the last several months . . . looking at various agency and individual proposals for handling such a promotional program in the interests of the entire aerosol business. Knocking out paid space or the more costly sales promotion type of program, his committee feels a good start could be made on \$50,000 per year, with a program built around editorial services, augmented possibly by a limited amount of direct mail material and short films of a non-commercial, educational nature for "free" time use on TV or before consumer groups.

Reason for a minimum \$100,000 goal is that C.S.M.A. wants two years' money in hand before any commitments are made. The association itself would provide only accounting services and reserve the right to review the program and material as it is prepared to be sure it conforms to legal and ethical standards of the C.S.M.A. Other-

wise, the aerosol promotional project would be handled by an advisory committee named by those companies contributing to the promotional fund . . . thus, it would, under present plans, be a semi-official, industry-supported and governed, activity under the watchful eye of the C.S.M.A.

The decision as to whether the program would be turned over to a public relations agency for handling or be conducted by employees hired by the contributors' steering committee will be postponed until funds are on deposit with the association. That's an intelligent move, in our opinion, for commitments made on promises rather than actual cash-in-hand have too often turned out to be headaches, both morally and financially.

By the time this appears in print, the committee will have contacted every C.S.M.A. member interested in the aerosol business . . . will have outlined the proposed program in as much detail as possible, and will have solicited contributions. Frankly, the range of "assessments" we have heard discussed have been very reasonable, considering the potential value of the program. They do not seem to us to represent a "burden" in a financial sense and we sincerely believe that a dollar spent will stand a good chance of netting at least a dollar's return in expanded business . . . provided, of course, that those who contribute realize that the proposed industry-supported campaign is an adjunct to, but not a substitute for, their own promotion of their own brand of products. The program envisioned by Lodes' committee can whet the consumer's appetite for aerosol products as a type of packaging. Only the individual marketer's promotion can sell the consumer on buying his own brand of product.

To put it another way, the program proposed by the aerosol publicity committee is a product-type promotion . . . not a commercialized brand promotion. The latter could never be done successfully, in our opinion, on an industry level.

It's hoped that the financial solicitation will have proceeded to the point that a final status report on the project can be presented to the C.S.M.A. board of governors at its December meeting in Washington. Should the funds for two years' operation be on deposit with the association at that time, it's conceivable that the aerosol promotional program would get underway shortly after the first of the year.

Proceeding independently, and much more slowly, is the moth control publicity and promotion committee under the direction of Don Templeton of Stanley Home Products. After several committee meetings in New York, at which little firm agreement was attained, the proposed program was turned over to a smaller committee made up almost exclusively of advertising and public relations officials of some of the interested member companies. They'll report their recommendations to Templeton's committee, hoping to settle once and for all the question of whether the project should be considered for immediate adoption or abandoned entirely.

* * *

TALK of a recent slump in aerosol business has been rife the last few weeks, with the decline said to have set in around August 1. Frankly, we have been unable to pin-point any so-called slump with the possible exception of the insecticide end of the business. And there any sales drop can be chalked up to a bad bug year . . . with the wet, cooler weather failing to produce as many pests as we had in the last several hot, dry summers. To us, that's an act of God . . . not an economic slump in the sense of

business "going to pot". Most other products, from what we can learn, are moving ahead . . . perhaps a little more slowly than the fantastic spurts that have marked the aerosol business picture in previous years, but still up. And new products continue to hit the market pretty regularly.

Propellant manufacturers admit they haven't hit forecasts in the last two or three months, but don't view the slight drops below forecasts as any signs of a slump. Forecasting admittedly contains some elements of gamble and optimism and the fact you miss one or two months' forecast could be nothing more than a sign that optimism has exceeded actual growth potential.

When you look at the sales curves on aerosol products for the last ten years, the growth line is a fantastically straight one . . . up. But it's only sensible to believe that there's going to be some leveling off one of these days because aerosol production can increase a lot faster than the birth rate. Maybe we've been so accustomed to the steady, unwavering, upward climb of aerosol sales that even a normal slight sloping off is misconstrued as a slump.

Personally, our checks indicate the aerosol child is still a healthy youngster, feeling nothing more serious than a few growing pains.

* * *

SPEAKING of new products, we ran across one from New Zealand that tickled our wooden leg. It's "Noxem" Borer Spray, by Fraser's Products, Ltd., of Auckland . . . good against borers, weathering, and dry rot. Seriously, it's a new product, in a flat-bottomed 12-ounce aluminum can, for treatment of timber, furniture, match-lining, etc. Containing "the most active agent known against wood-borer combined with liquid metals (zinc and copper naphthalates)", it's also recommended for treating canvas and cordage against mildew, fungus, and rot.

* * *

BATTELLE Institute's proposed program for developing a rea-

sonably-priced "cascade impactor" device for measuring aerosol particle size has been formally abandoned . . . due to insufficient industry support. Only a half dozen companies, out of the required dozen or so, agreed to commit money to the development program which would have cost about \$25,000. After being in the talking stage for nearly a year, the project got to the "put up or shut up" stage, financially speaking. The voices fell by the wayside, with little prospect of revival.

* * *

NEW entry in the aerosol pharmaceutical picture is "Medihaler-Nitro" spray, another metered-dosage, direct inhalation, drug product by Riker Laboratories, Inc. of Los Angeles. Containing octyl nitrite, it's for patient-administered relief of heart attacks caused by a coronary insufficiency . . . provides a good means, the manufacturer says, for aborting an angina attack if used at the onset of prodromal symptoms. Precautions with regard to dosage should be exercised, however, he adds, in the presence of frank coronary thromboses.

Nitrites of the type contained in the newest Riker product are said to rarely cause the headaches associated with nitroglycerine therapy, and have been shown to be effective treatments in biliary colic, biliary dyskinesia, postoperative biliary spasm, lead colic, achalasia, and urethral spasm, or colic. Your physician will have to translate those for you.

* * *

SLIGHT adjustments in the price of fluorinated hydrocarbon propellants to bulk users were announced in October by Du Pont and General Chemical. Prices of straight "Freon-11" and "Genetron-11" propellants were reduced 1.2 per cent, while "Freon-12" and "Genetron-12" went down 7 per cent, both in tank-truck and tank-car quantities. At the same time, price of ready-mixed solutions of

11 and 12 went up about four per cent in the bulk quantities.

Result: Per-pound price of propellant-11 is now 20 cents and propellant-12, 25.3 cents, in the bulk quantities. Single ton tanks of propellant-11 also were reduced to 21 cents per pound, while propellant-12 in ton tanks remains at 26.3 cents per pound.

—★—

New Foil Wrap Folder

A new folder on "Bencoseal" foil wraps has been made available by the Shellmar-Betner Flexible Packaging Division of Continental Can Co., Mount Vernon, O., it was announced recently. The pamphlet, which contains actual package samples of the foil wrap, provides complete information about the product, including its uses. Copies can be obtained upon request from Shellmar-Betner.

—★—

Packaging's Role in Sales

The company that does the best packaging job in the next few years will be the leader in sales and profits, according to Gustav L. Nordstrom, executive director of the Folding Carton Trade Association, Chicago. In a speech before the Los Angeles Advertising Club last month, Mr. Nordstrom declared that the packaging era now in progress will bring about a streamlined retail sales system in every line of consumer trade.

"The super-market era will spread to all avenues of consumer trade," he said. "The place of good packaging in attaining sales and profits will become obvious. When that happens the companies that have utilized the best packaging know-how, will be far ahead, while the others will fall by the wayside."

Mr. Nordstrom also predicted that packaging will be a full partner of advertising, salesmanship and merchandising within a few years. "Already," he said, "packaging is a valuable medium of advertising and on-the-spot selling. In the super-market era of tomorrow proper packaging will be a necessity."

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If you want further information, communicate with

H. W. HAMILTON, *Secretary*



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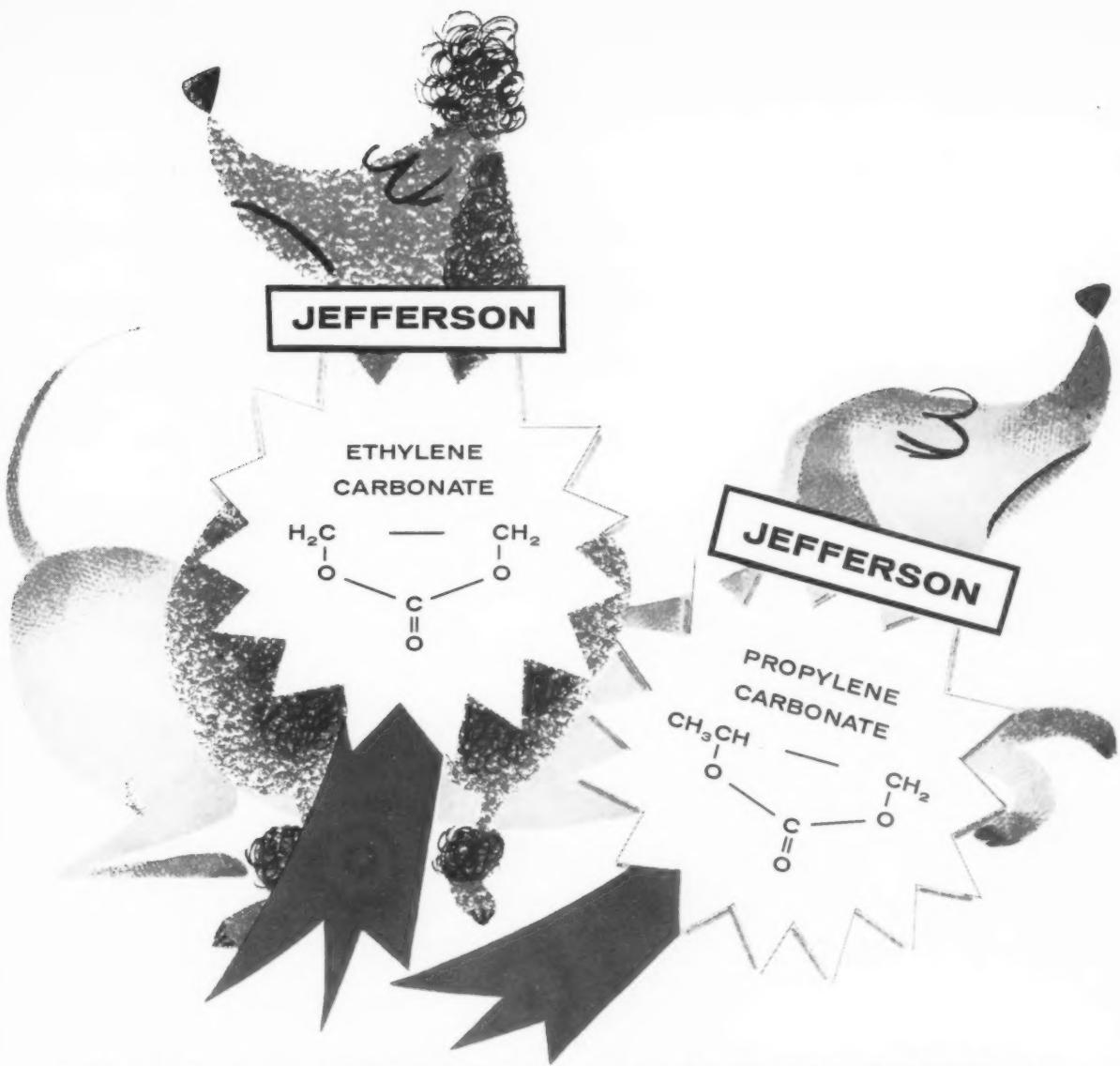
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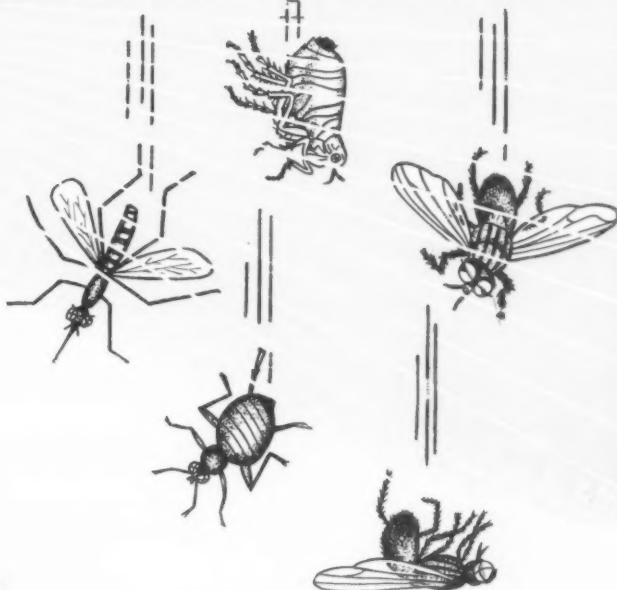
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NOVEMBER, 1956

119

...about insecticides

HANDBOOK OF PEST CONTROL

by Arnold Mallis



THIS new HANDBOOK of PEST CONTROL by Arnold Mallis, is a completely revised edition, containing more than 200 illustrations — a much larger and more complete volume than the original HANDBOOK by Mallis, published in 1945 and out of print since 1948.

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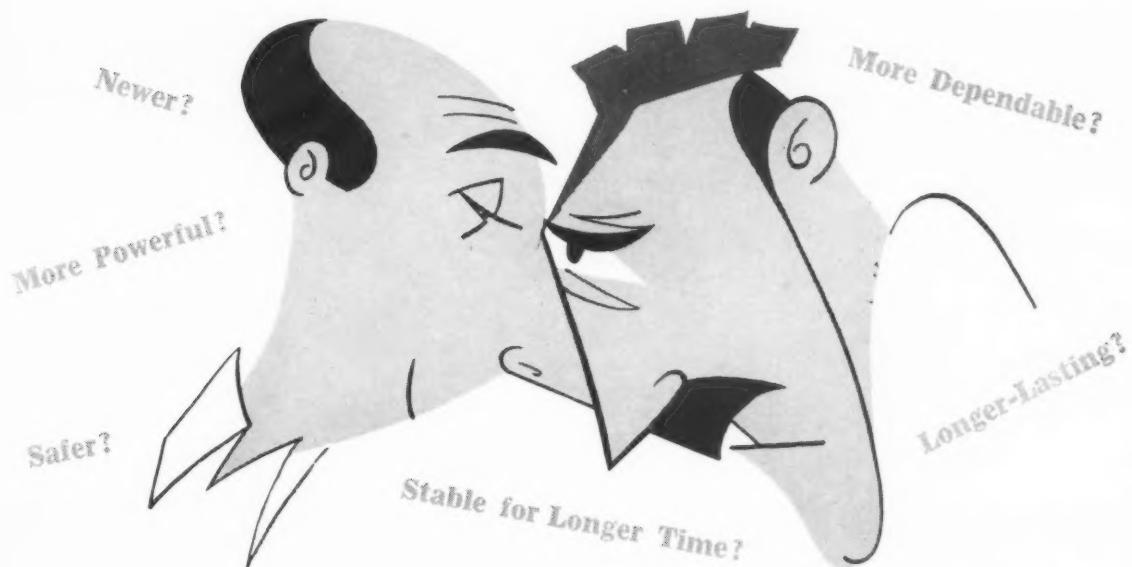
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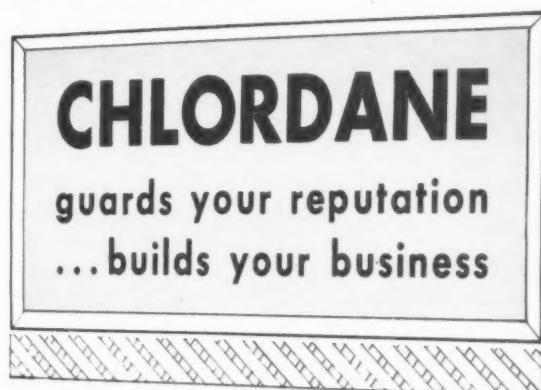
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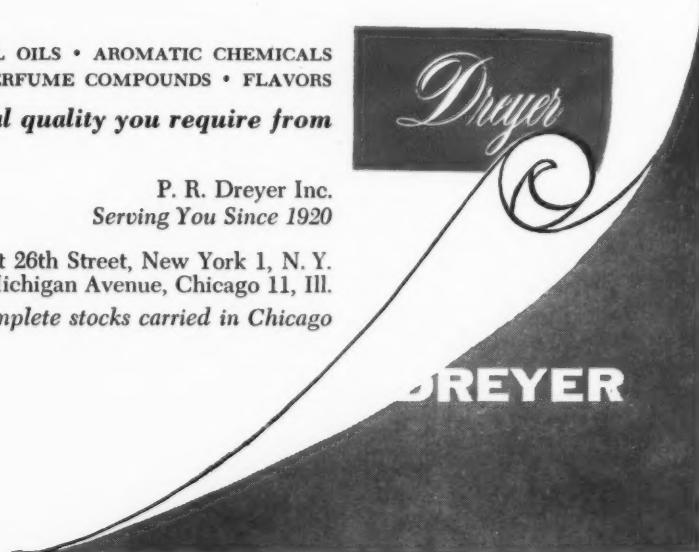
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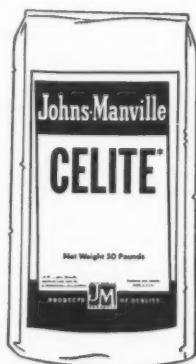


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PHYSICAL PROPERTIES

Molecular Weight	89.14
Boiling Point, at 760mm	165°C
Melting Point	30-31°C
Specific Gravity at 20/20°C	0.934
pH of 0.1M Aqueous Solution at 20°C	11.3
Solubility	Miscible with water, aromatic hydrocar- bons, alcohols, es- ters. Insoluble in aliphatic hydro- carbons.

SPECIFICATIONS

Neutral Equiv.	88.5-91.0
Color, APHA, max.	20
Water, by wt., max.	0.8%
Distill. Range	156°C-177°C
Below 161°C, max.	10%
Above 168°C, max.	5%
Odor	Characteristic
Non-volatile matter by weight, max.	0.005%

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 $\text{CH}_2\text{OHC}(\text{C}_2\text{H}_5)(\text{NH}_2)\text{CH}_2\text{OH}$

TRIS AMINO (Tris [hydroxymethyl]
aminomethane) $(\text{CH}_2\text{OH})_3\text{CNH}_2$

AB (2-Amino-1-butanol)
 $\text{CH}_3\text{CH}_2\text{CHNH}_2\text{CH}_2\text{OH}$

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INDUSTRIAL
CHEMICALS

Evaluation of Toilet Bowl Cleaners

By Paul Schweitzer
and Jay F. Bagshaw

The Climalene Co., Canton, O.



Illustration from booklet "Office Building Sanitation" just published by Nationwide Insurance Co., Columbus, O.

DEVELOPMENT of a reliable test method for the performance of toilet bowl cleaners has become necessary with growing competition in this section of the chemical specialties field. An efficient toilet bowl cleaner must rapidly remove a variety of stains and deposits commonly present on the surfaces for which it is designed. However, the evaluation method presented in this paper is confined to the measurement of iron stain removal. It is a laboratory method, said to correlate well with results obtained in use tests.

With a test evaluation method as an accurate tool, within limits many substances and formulations can be evaluated for iron stain removal. Some observations of test results in relation to chemical reactions can be generalized to arrive at least at a logical concept for behavior of various ions and molecules toward this kind of stain or deposit. These generalizations can be concluded and projected to practical toilet bowl cleaning.

- 1) Thus far discovered, without exception and within the scope of practical toilet bowl cleaning, iron stain deposits are not removed to any appreciable extent above a cleaning solution pH value of 3.0.
- 2) As the pH value of the cleaning solution decreased (>0.1), the

iron stain removal rate was generally found to increase.

- 3) Certain sequestering or complexing chemical substances show increased iron stain removal at low pH values, provided, of course, the effective complexing structure is not altered.

From items 1, 2, 3 the following conclusions may be drawn:

- a) Generalizations (1) and (2) indicate that hydrogen ions are suggestive of the substance required to remove by chemical action the iron stains (forms of ferric oxide).
- b) Generalization (3) is characteristic of many complexing chemical reactions and in this case the removal rate is further increased over and above the hydrogen ion effect. Ferric ions, in solution, are complexed to an extent which upsets the ionic equilibrium to favor more iron oxide removal by the hydrogen ions. Strong mineral inorganic acids are the best and lowest cost hydrogen ion producers in dilute solution. Nevertheless, hydrochloric or sulfuric acids, for example, by themselves do not exhibit outstanding iron stain removal, but when the correct complexing substance is added the reaction rate can be increased markedly. On the other hand some complexing

type chemical substances without the hydrogen ions are of little value. It is not difficult to deduce that the ideal and most simple iron stain remover would be a molecule with a structure that inherently, has both available hydrogen ions and complexing properties.

The formulas of several leading toilet bowl cleaners on the market today incorporate the above principles, although only research will develop better combinations to reach an ultimate in this phase of toilet bowl cleaning.

Consumer surveys indicate the importance of selecting the correct ingredients to achieve mildness, low toxicity, in addition to superior performance. Most manufacturers are complying with the consumer demands. The older bisulfate products are being replaced by new formulations or modifications in keeping with the requirements of the modern home-makers. There are many good bisulfate formulations on the market. However, their replacement by new liquid and granular products is inevitable as a result of technical advances made through research.

Unfortunately, many good iron stain remover formulations are quite toxic and are subject to the provisions of the federal law. Local authorities are less lenient with the labeling of such products than in

*versatile
CSC emulsifier
and chemical
intermediate*



AMP

2-AMINO-2-METHYL-1-PROPANOL

use AMP as an emulsifier

AMP oleate is an economical emulsifier in water-wax emulsions. That's because AMP oleate is effective in lower concentrations than are required for comparable performance with other amine soaps. Emulsions made with relatively low concentrations of AMP oleate are stable and unchanged after repeated freeze-thaw cycles and heat stability tests. In properly formulated floor wax emulsions, AMP oleate imparts high gloss and excellent leveling characteristics.

The higher fatty acid soaps of AMP are powerful emulsifying agents in cleaners, polishes, dressings, self-polishing floor waxes, and emulsion-type paints. Evaporation loss and objectionable fumes are minimized during emulsion manufacture, due to AMP's relatively high boiling point. Films deposited from AMP-made emulsions have excellent water resistance and durability.

use AMP as a chemical intermediate

AMP forms substituted amides with esters, anhydrides, and acyl halides. AMP also reacts with alkyl halides, aldehydes, ketones, carbon disulfide, and many other compounds. These reactions suggest the use of AMP in the synthesis of surface-active agents, detergents, and vulcanization accelerators for rubber.

PHYSICAL PROPERTIES

Molecular Weight	89.14
Boiling Point, at 760mm	165°C
Melting Point	30-31°C
Specific Gravity	
at 20/20°C	0.934
pH of 0.1M Aqueous Solution at 20°C	11.3
Solubility	Miscible with water, aromatic hydrocarbons, alcohols, esters. Insoluble in aliphatic hydrocarbons.

SPECIFICATIONS

Neutral Equiv.	88.5-91.0
Color, APHA, max.	20
Water, by wt., max.	0.8%
Distill. Range	156°C-177°C
Below 161°C, max.	10%
Above 168°C, max.	5%
Odor	Characteristic
Non-volatile matter by weight, max.	0.005%

OTHER AMINOHYDROXY COMPOUNDS

AMPD (2-Amino-2-methyl-1, 3-propanediol)
 $\text{CH}_3\text{OHC}(\text{CH}_2)\text{NH}_2\text{CH}_2\text{OH}$

AEPD (2-Amino-2-ethyl-1, 3-propanediol)
 $\text{CH}_2\text{OHC}(\text{C}_2\text{H}_5)(\text{NH}_2)\text{CH}_2\text{OH}$

TRIS AMINO (Tris [hydroxymethyl] aminomethane) $(\text{CH}_2\text{OH})_3\text{CNH}_2$

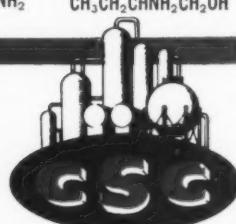
AB (2-Amino-1-butanol)
 $\text{CH}_3\text{CH}_2\text{CHNH}_2\text{CH}_2\text{OH}$

AMP is another important chemical derived from CSC's Nitroparaffins. For samples and additional information write to:

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INDUSTRIAL
CHEMICALS

Evaluation of

Toilet Bowl Cleaners

**By Paul Schweitzer
and Jay F. Bagshaw**

The Climalene Co., Canton, O.



Illustration from booklet, "Office Building Sanitation" just published by Nationwide Insurance Co., Columbus, O.

DEVELOPMENT of a reliable test method for the performance of toilet bowl cleaners has become necessary with growing competition in this section of the chemical specialties field. An efficient toilet bowl cleaner must rapidly remove a variety of stains and deposits commonly present on the surfaces for which it is designed. However, the evaluation method presented in this paper is confined to the measurement of iron stain removal. It is a laboratory method, said to correlate well with results obtained in use tests.

With a test evaluation method as an accurate tool, within limits many substances and formulations can be evaluated for iron stain removal. Some observations of test results in relation to chemical reactions can be generalized to arrive at least at a logical concept for behavior of various ions and molecules toward this kind of stain or deposit. These generalizations can be concluded and projected to practical toilet bowl cleaning.

- 1) Thus far discovered, without exception and within the scope of practical toilet bowl cleaning, iron stain deposits are not removed to any appreciable extent above a cleaning solution pH value of 3.0.

- 2) As the pH value of the cleaning solution decreased (>0.1), the

iron stain removal rate was generally found to increase.

- 3) Certain sequestering or complexing chemical substances show increased iron stain removal at low pH values, provided, of course, the effective complexing structure is not altered.

From items 1, 2, 3 the following conclusions may be drawn:

- a) Generalizations (1) and (2) indicate that hydrogen ions are suggestive of the substance required to remove by chemical action the iron stains (forms of ferric oxide).

- b) Generalization (3) is characteristic of many complexing chemical reactions and in this case the removal rate is further increased over and above the hydrogen ion effect. Ferric ions, in solution, are complexed to an extent which upsets the ionic equilibrium to favor more iron oxide removal by the hydrogen ions. Strong mineral inorganic acids are the best and lowest cost hydrogen ion producers in dilute solution. Nevertheless, hydrochloric or sulfuric acids, for example, by themselves do not exhibit outstanding iron stain removal, but when the correct complexing substance is added the reaction rate can be increased markedly. On the other hand some complexing

type chemical substances without the hydrogen ions are of little value. It is not difficult to deduce that the ideal and most simple iron stain remover would be a molecule with a structure that inherently, has both available hydrogen ions and complexing properties.

The formulas of several leading toilet bowl cleaners on the market today incorporate the above principles, although only research will develop better combinations to reach an ultimate in this phase of toilet bowl cleaning.

Consumer surveys indicate the importance of selecting the correct ingredients to achieve mildness, low toxicity, in addition to superior performance. Most manufacturers are complying with the consumer demands. The older bisulfate products are being replaced by new formulations or modifications in keeping with the requirements of the modern home-makers. There are many good bisulfate formulations on the market. However, their replacement by new liquid and granular products is inevitable as a result of technical advances made through research.

Unfortunately, many good iron stain remover formulations are quite toxic and are subject to the provisions of the federal law. Local authorities are less lenient with the labeling of such products than in

the past. On the other hand, there are products that have a relatively low degree of toxicity, which gives them a distinct sales advantage.

Evaluation Procedure

AMETHOD of evaluating toilet bowl cleaners has been developed which we believe is new for these products, but not particularly new in the general cleaning industry. The important thing is that it has given good results with toilet bowl cleaners. Certain details in the test procedures are novel and were designed specifically for bowl cleaners.

It is generally agreed that the most satisfactory way to evaluate a cleanser is to test the product on the specific surface or substrate which it is intended to clean. For reliable results, an identical soil, or one having similar properties or characteristics to the actual soil to be removed in practical applications, should be deposited on the test surface. Attention should also be given to the mechanical or physical force used in the actual cleaning operation. In many cases the exact reproduction of the cleaning procedure is difficult and likely, therefore, to be unreliable. For this reason any deviation in the controlled laboratory test procedure must be accounted for and correlated with the results obtained by testing the product using the method normally employed by the consumer. This can also be done in the laboratory, but experience indicates that laboratory results gain significance only if correlated with actual use tests.

Laboratory test procedures of this kind inherently are full of variables; some of those known can be controlled precisely, others are unknown. Statistics must be applied to interpret results from such tests.

The weakness of this test method is the correct preparation of iron stain deposits on the substrate. This difficulty can be overcome with a little practice. Once the technique has been mastered, extremely uniform deposits can be prepared.

The use of agitation by brush or swab has been omitted intentionally in our method of evaluation. This omission is based on the fact that we are concerned with chemical, rather than physical, removal of deposits.

Agitation accompanying the application of toilet bowl cleaners varies with each user, and lacks the uniformity of mechanical agitation in a washing machine. Because of this variability, agitation has no place in a standard test procedure, although certainly it can show improved results.

Experimental

Test Plates: Test plates were obtained from a toilet bowl manufacturer and made to have the exact physical characteristics of the standard toilet bowl. These plates measure $\frac{1}{2}'' \times 2\frac{1}{2}'' \times 4\frac{1}{2}''$ and have white glaze over one face of the porcelain body. This size is convenient for the various test and measuring apparatus. From 200 test plates a selection process was used to discard plates with checks, obvious irregular surfaces, etc. The selected plates are carefully washed with a scouring type cleanser and rinsed in hot distilled or soft water. Before the plates are completely air dried, the glazed surface is thoroughly wiped dry with a clean dish towel. This process will leave the test surface of the plates clean and ready to measure for luminous reflectance. The selected and clean plates are measured for luminous reflectance, using the Universal Hunter "Reflectometer". The amber tristimulus filter is used for the measurement and set with a working standard of 789. To reduce the magnitude of variations of reflectance values, only plates with reflectance values between 720 and 740 are used for test purposes.

The reflectance value of each plate is recorded and each respective plate is marked on the back in pencil.

Stain Deposit on Test Plates: The measured plates are laid horizontal on racks of a gravity draft oven (Fisher "Isotemp") and

the oven adjusted to $180^\circ \text{ C.} \pm 2^\circ$. Usually, 72 plates can be heated simultaneously in a common size drying oven. The heating period requires 12 hours to bring the plates uniformly up to the 180° C. temperature. It is important that the plates are uniformly heated throughout to have even distribution of the stain deposit and uniform adherence to the test plates.

Individually, and one at a time, the heated plates are removed from the oven with forceps and placed vertically in a holder (laboratory ring stand with clamp). The holder, in turn, is contained in a spray booth. In our laboratory we used a simple box construction of plaster board with an old dust collector to carry away excess vapor and mist.

The stain solution is placed in a glass, 1000 ml. beaker. From the beaker a rubber hose carries the solution by suction to a De Vilbiss spray gun, type TGA, series 501. The gun is attached to a standard laboratory ring stand with a clamp, which will swivel the gun about $30^\circ \pm$ from the spray directional axis. 10 p.s.i. air pressure is used to suck and atomize the staining solution to the gun nozzle and propel the atomized solution to the test plates which are set approximately 12 inches from the gun nozzle, with the center axis of the test plate horizontal to the orifice of the nozzle. The plates are sprayed for 15 seconds, which can conveniently be timed by a stopwatch. The sprayed plate is removed by forceps and placed vertically in a holder or rack. Once the spray gun is set, all 72 plates are sprayed without interval. A correctly sprayed plate will have a brown appearance of uniform deposition of iron oxide without rubbing off.

When the colloidal oxide spray strikes the hot test plates the water immediately evaporates, leaving the solid deposit on the plates.

Iron Stain Preparation: The iron stain solution is prepared by dissolving five grams of reagent grade ferric chloride ($\text{Fe Cl}_3 \cdot 6\text{H}_2\text{O}$)

in 20 ml. of distilled water. 10 ml. of this solution is pipetted into 800 ml. of boiling distilled water. The result of this technique is a colloidal hydrous ferric oxide. The solution is cooled before using.

Stain Deposit Reflectance Measure: After the sprayed plates are cooled to room temperature, they are measured with the same filter and apparatus as were used for the unstained or cleaned plates. To reduce the variable reflectance values again the stained plates are selected to have a clean reflectance and stain reflectance value difference of 150 to 200.

Initial reflectance value - stain reflectance value = 150 to 200. See Table I.

The stain removal test is run in duplicate for each toilet bowl cleaner or formulation tested in each set . . . so we averaged the clean reflectance and stain reflectance difference to fall between 170-180 for duplicate selected plates. In other words, this final selection method helps place the combination clean and stain reflectance of the plates on a par within the limits for any test set or series of sets. See Table I.

The test plates are quite uniform in reflectance and when the spray gun is properly set, the test plates can be produced with iron stain or deposit reflectance that leads to a good yield of plates that fall within the limits set.

Iron Stain Removal: Six duplicate test plates make up a test set (12 plates). A set of this size evaluates five toilet bowl cleaners and one primary standard bowl cleaner. For the primary standard bowl cleaner we selected technical grade nitre cake (90 percent sodium bisulfate) which is run in each test set to enable detection of possible lack of control.

Toilet Bowl Cleaner Test Solutions: 225 ml. of distilled water is added to each of six, 400 ml. beakers. The beakers are placed in a constant temperature water bath until the water in the 400 ml. beakers is up to predetermined test temperature. The toilet bowl

Table I

Initial Refl.	Iron Stain Refl.	Diff.	Avg. of Diff.
726	536	190	
724	574	150	170
730	548	182	
722	564	158	170
722	540	182	
726	568	158	170
722	542	180	
728	568	160	170
730	550	180	
736	576	160	170
730	552	178	
722	560	162	170

cleaners are weighed out ± 1 milligram and brushed or poured into the temperature controlled water and in the 400 ml. beakers. The cleanser compositions are completely dissolved by stirring. For our standard test, 4 percent solutions were used (four grams cleaner to 100 ml. water). In the water bath for a complete test set are six beakers, one for each individual cleaner tested, including the primary standard.

In each beaker two iron stained and duplicate selected test plates are carefully placed in a vertical position. This gives a duplicate for each cleaner evaluated. The standard test temperature is set at 60° F. ± 5 ° F., which is average for the water temperature in home toilet bowls. After the predetermined test exposure period (standard test two hours), the plates are removed from the beakers and rinsed in cold soft water. This rinsing technique permits a slow stream of water to hit the top edge of the plate and run over the stain removed surface, rather than the water stream directly hitting the

stained surface. The plates then are placed in holders in a vertical position.

Iron Stain Removal Measurement: The cleaned plates are air dried and measured, using the Universal Hunter Reflectometer and again using the amber filter. The individual reflectance values are recorded.

Calculations: % iron stain removed =

$$\frac{\text{cleaned reflectance} \times 100}{\text{initial plate reflectance}}$$

Statistical Analysis

IN ANY series of replicate determinations it can be expected that differences exist between individual values obtained. In a classical analytical procedure this difference should necessarily be small. In the case of evaluation tests the nature of the variable differences can be quite large. When a sufficient number of duplicate and controlled tests are made, the differences can be calculated to be within limits that enable comparison on a statistical basis.

To analyze the test results of the toilet bowl cleaners (iron stain removal), we used the statistics that fall under the "significance of the mean." The twice standard error of the mean was utilized.

2 x standard error of mean =

$$o' \times 2$$

$$\sqrt{n}$$

o' = standard deviation

n = number of test values

By applying the above statistics we have found that primary standard

(Turn to Page 174)

Table II. Iron Stain Removal

2 HRS. EXPOSURE, 300 ppm WATER
60° F.

Product	Conc.	pH	I.R.	C.I.R.	C.I.R. 2 x Std. Error
Primary Standard	4%	1.20	86.1	100	± 2.18
Product A	4%	1.00	88.8	103.2	± 1.50
Mineral Acid B No Complexing	4%	0.43	89.0	103.4	± 1.20
Mineral Acid C No Complexing	4%	0.13	90.1	104.7	± 2.32
Mineral Acid D With Complexing	4%	1.30	97.7	113.5	± 1.81
With Complexing	4%	1.30	97.7	113.5	± 1.81
Product E	4%	1.70	87.1	101.2	± 2.64



Top: Weighing crude tall oil which is delivered to plant from paper mills by tank trucks. Al Hasty is the trucker; Jess Drewery, the weigher.

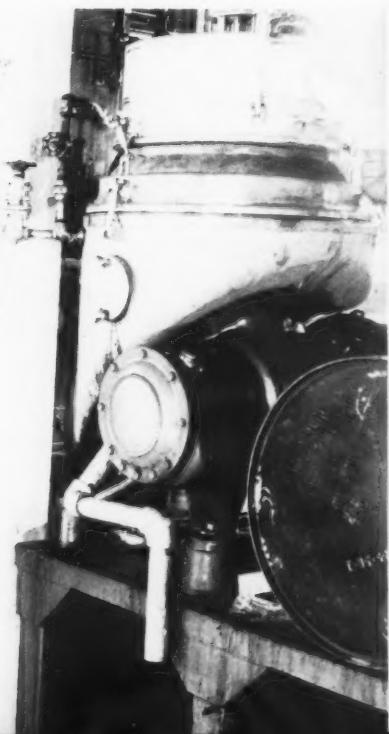
New Hercules Tall Oil Plant

HERCULES Powder Company, Wilmington, Del., the world's largest producer of chemicals from the pine tree, is now processing crude tall oil at a new plant in Franklin, Virginia. The plant processes approximately 5,000 tons of crude oil annually. A second plant is being built at the company's Savannah, Georgia, manufacturing facilities. This plant will have about the same capacity as the one at Franklin.

The plant design and process, while based on a fundamental chemical engineering technique, has been modified and improved through Hercules' extensive know-how in the distillation field. Produced in the latest type of multi-column fractional distillation equipment, "Pamak" tall oil fatty acids are designed to meet specific requirements for uniform high quality.

These versatile chemical materials are finding ever-increasing use in disinfectants, detergents, printing inks, linoleum, paints, petroleum processing, flotation agents, and agricultural chemicals.

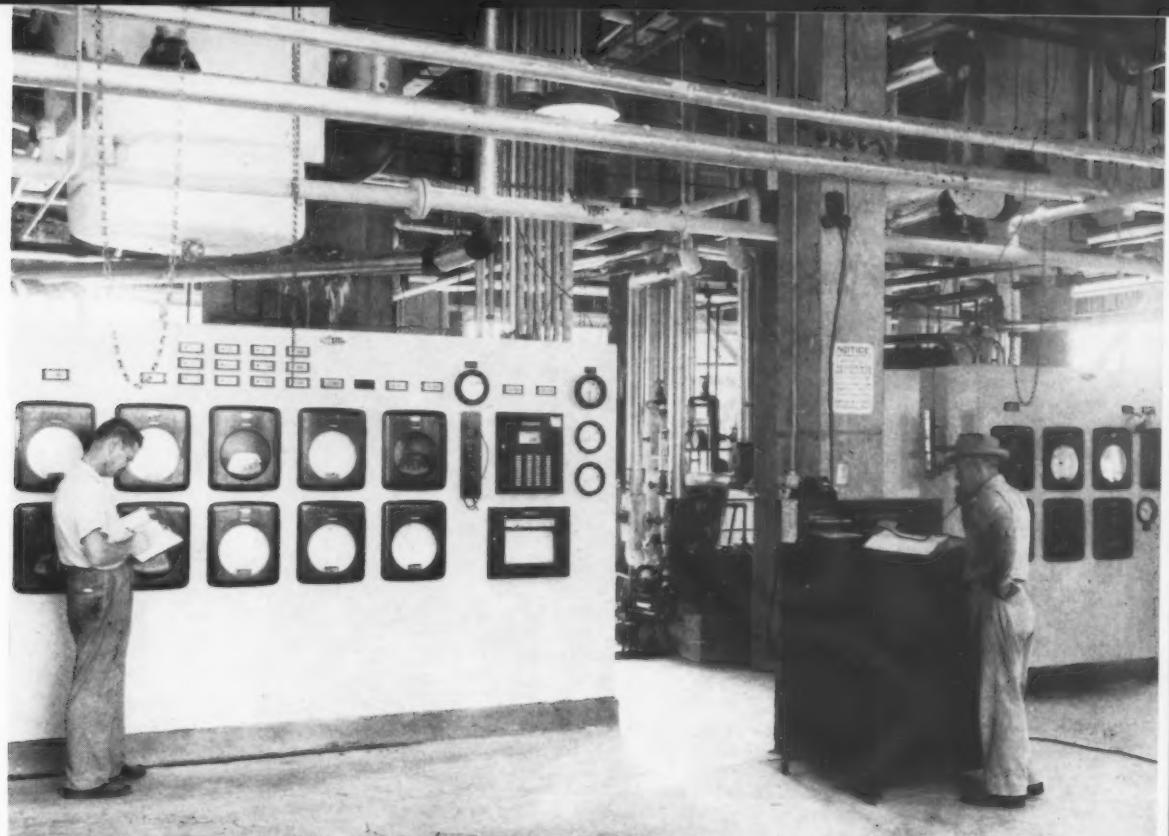
Right: From the holding tank the crude tall oil goes to the pretreatment area, where it is cleaned up and the impurities removed. Here we see operator, Ken Brown, checking the control panel in the pretreatment house. From the pretreatment area the crude tall oil goes into storage tanks.



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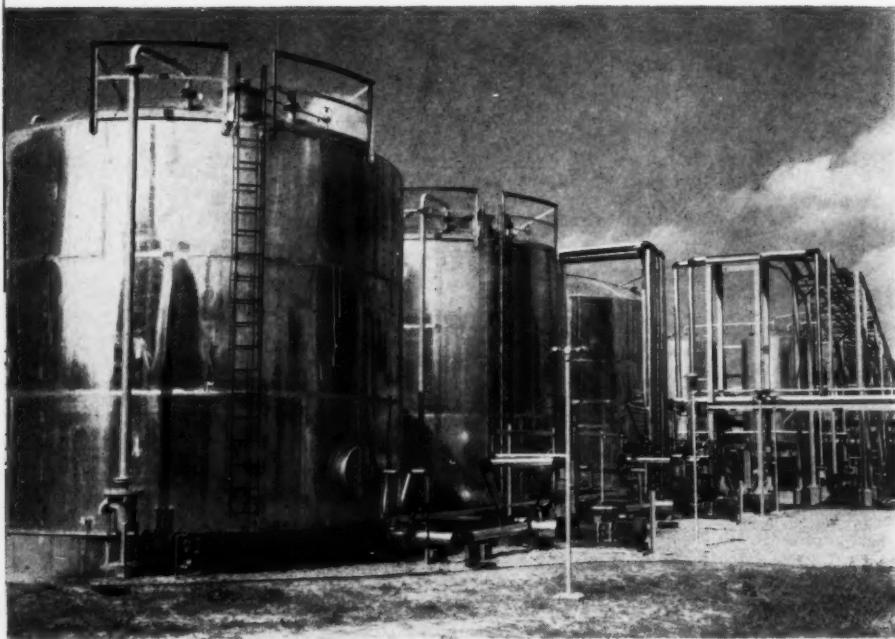
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Top: From the storage tanks the crude tall oil goes to the fractionation building. Here we see the main floor in the fractionation building showing two of the control panels. The operator is James Harvey and the supervisor, Horace Hines.



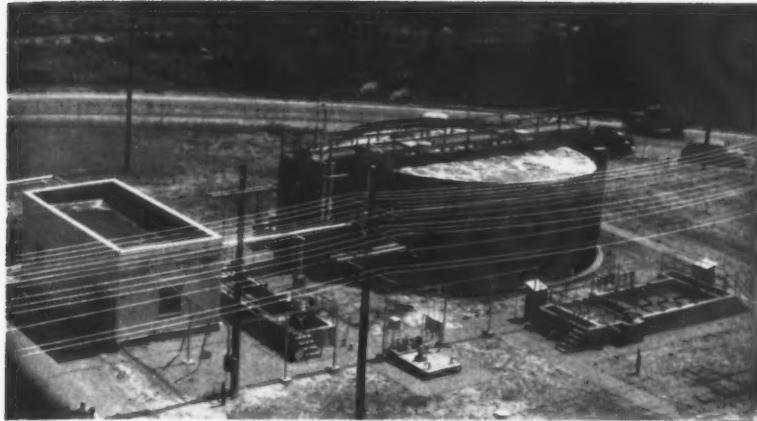
Left: A section of one of the fractionation columns showing auxiliary equipment. There are five of these columns in the fractionation building. In these columns rosin and fatty acids are separated and brought within chemical and physical specifications. Shown is Dennis Molnar, assistant plant manager.



From the fractionation building the various fatty acid products are piped to the tank storage area. These are aluminum tanks blanketed with nitrogen for color control. In the Franklin, Va., plant Hercules produces tall oil fatty acids, tall oil rosin, and tall oil pitch. The tall oil rosin is produced for captive use by Hercules. The products are shipped by tank car, tank trucks, or in drums.

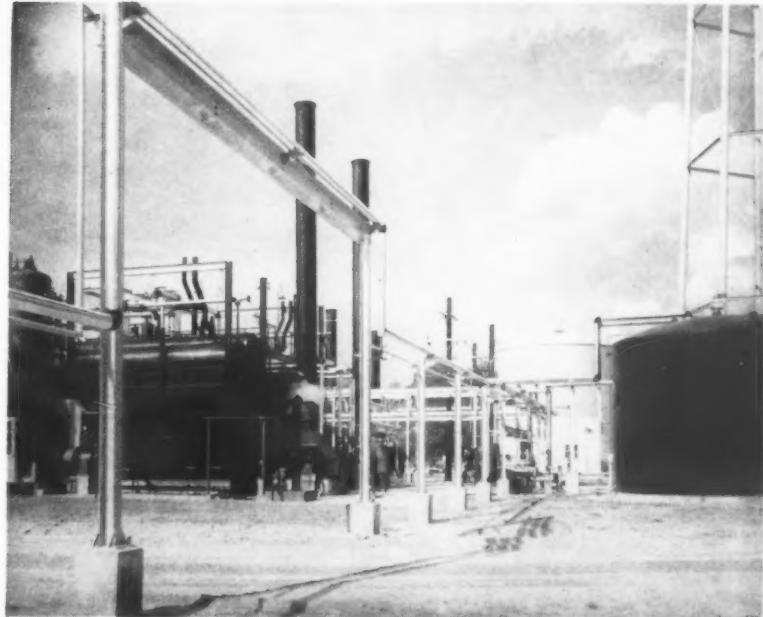
Bottom: Sampling crude tall oil prior to unloading. The crude tall oil is unloaded into the small holding tank shown in right of picture.





View below is of power house, shown on the left, and fuel storage tanks.

Above: An essential part of the Franklin, Va., plant is the waste-water treatment area. The water, containing pollution-causing materials is purified before being pumped to the river. Actually the water, which is pumped to the stream, is more pure than the water in the stream. In this picture on the left is the chemical house, in which the purifying chemicals are added. Next to the chemical house is the continuous mixing equipment which mixes the chemicals before pumping into the large activated sludge tank. In this tank bacterial activity takes place which completes the purification. In front of the activating sludge tank is one of the settling tanks.



Left: General view of the office building showing water tower in the background, crude tall oil storage tanks on the left, and the fractionation building in the left background.

CSMA 43rd Annual Meeting

FURTHER program details for the 43rd annual meeting of the Chemical Specialties Manufacturers Association, to be held Dec. 4 and 5 at the Mayflower Hotel, Washington, D. C., were announced late in October by H. W. Hamilton, secretary.

Decontamination and disinfection in emergencies will be studied from all angles by a panel including speakers representing: civil defense, the U.S. Public Health Service, the Food and Drug Administration, and three branches of the army: biological warfare, the Chemical Corps, and the Army Engineers. The emergency decontamination of water and the protection of food and drugs and sanitation in emergencies are among vital questions to be studied by this panel, scheduled for the afternoon of Dec. 4.

Details of the motion picture program set for the same afternoon have been announced. Four pictures will be shown by General Electric, Shell Chemical, and du Pont, respectively.

The tentative program, including latest additional information follows:

Tuesday morning, Dec. 6

AUTOMOTIVE DIVISION, Address of division chairman by Harold G. Lederer, R. M. Hollingshead Corp., Camden, N. J.; "Container Storage Testing," by George Curtis, American Can Co., New York; "Silicones in Wax Formulations," by Richard Gergle, Dow Corning Corp., Midland, Mich.; "Water Tolerance of Brake Fluids," by G. F. Sharrard and H. Hanson, R. M. Hollingshead Corp.; "Results of SAE Brake Temperature Studies," by S. J. Markey, Moraine Products Co.

INSECTICIDE DIVISION, Address of division chairman by Carlos Kampmeier, Rohm & Haas Co., Philadelphia; Panel discussion: "Answers to Labeling, Regulatory, and Toxicological Problems with Insecticides"; panelists are: W. G. Reed and S. C. Billings, Agricultural Research Service, U.S. Department of Agriculture, Plant Pest Control Branch, Washington, D. C.; W. B. Rankin, Bureau of Biological and Physical Sciences, Food and Drug Administration, Washington, D. C.; and C. H. Jefferson, Department of Agriculture, Production Service, Plant Products Division, Ottawa, Canada.

SOAP, DETERGENTS, AND SANITARY CHEMICAL PRODUCTS DIVISION, Address of division chairman by James M.

Cloney, General Aniline & Film Corp., New York; "Cationic Softeners," by Paul L. Du Brow and Warner M. Linfield, Armour & Co., Chicago; "Abrasion Characteristics of Household Cleaners," by C. A. Gerardi, U.S. Testing Co., Hoboken, N. J.; "Evaluation and Formulation of Heavy-Duty Liquid Detergents," by F. E. Woodward and R. F. Griffis, Antara Chemical Sales Division, General Aniline & Film Corp.; "Some Properties of Lauryl Ether Sulfates, Part II," by Richard R. Egan, M. J. Warren and L. L. Galitzin, American Alcolac Corp., Baltimore.

WAXES AND FLOOR FINISHES DIVISION, Address of division chairman by H. J. Mellan, Durez Plastics Division of Hooker Electrochemical Co., North Tonawanda, N. Y.; Panel discussion on "The Consumers' Viewpoint"; "New Trends in Floor Maintenance," by Albert J. Burner, Port of New York Authority; other panelists are William Joy, American Telephone and Telegraph Co., New York; Charles A. Peters, director of the building management division, Public Buildings Service, General Services Administration, Washington, D. C.; Daniel Fraad, Jr., Allied Maintenance Corp., New York; Ruel C. Stratton (or H. W. Rapp), Travelers Insurance Co., Hartford, Conn.; and Miss Jane Cornish, Good Housekeeping Institute.

Tuesday afternoon, Dec. 4

GENERAL SESSION, report of nominating committee; election of officers and board members; presentation of Achievement Award and announcement of aerosol package contest winners.

AEROSOL DIVISION, Address of division chairman by Charles E. Beach, John C. Salford & Sons, Inc., Baltimore; report of scientific committee projects by W. E. Baulieu, Bridgeport Brass Co., Bridgeport, Conn.; "Insecticidal Performance of Strobane Aerosols as a Function of Particle Size and Formulation of Spray," by John C. McCool, B. F. Goodrich Research Center, Brecksville, O.; "Analysis of Aerosol Constituents," by Morris Root, G. Barr & Co., Chicago; "Fragrance in Aerosols," by A. Dingfelder, Felton Chemical Co., Brooklyn, N. Y.; "Water-Based Aerosols," by Lee D. Callans, General Chemical Division, Allied Chemical & Dye Corp., New York.

DISINFECTANTS AND SANITIZERS DIVISION, Address of division chairman by A. G. Bowers, Hunt Manufacturing Co., Cleveland; panel on "Emergency Disinfection and Decontamination"; introductory remarks by Saul Kaye, Ben Venue Laboratories, Inc., Bedford, O.; followed by "Civil Defense & Health Hazards in Emergencies," by John H. Whitney, National Headquarters of Federal Civil Defense Administration, Battle Creek, Mich.; "Decontamination Problems Encountered in Disasters," by Milton J. Foster, Robert A. Taft Sanitary Engineering Center, U.S. Public Health Service, Cincinnati, O.; "Some Comments on Food and Drug Protection and Sanitation in Emergencies," by Glenn G. Slocum, Division of Microbiology of the Food and Drug Administration, Washington, D. C.; "Use of Vans for Emergency Sterilization Procedures Using Gases," by Benjamin Warshawsky, Decontamination Branch, United States Army Biological Warfare Laboratories, Fort Detrick, Md.; "Decontamination of Military Vehicles," by Clifford Spendlove, Dugway Proving Ground, U.S. Army Chemical Corps, Dugway, Utah; "Emergency Decontamination of Water Supplies," by Don C. Linston, Sanitary Engineering Depart-

ment, U. S. Army Engineer, Research and Development Laboratories, Fort Belvoir, Va.

MOTION PICTURE PROGRAM: General Electric Co., "Open Line to the Clouds" and "Bright Future"; Shell Chemical Co., "The Rival Worlds"; and E. I. du Pont de Nemours & Co., "First a Physician."

Company "Open House," evening, six to nine p.m.

Wednesday morning, Dec. 5

GENERAL SESSION, Address of president by Dr. E. G. Klarmann, Lehn & Fink Products Corp., New York; report of secretary, H. W. Hamilton; report of treasurer, P. C. Reilly, Reilly Tar & Chemical Corp.; Indianapolis; report of general counsel John D. Conner, of Cummings, Sellers, Reeves and Conner, Washington, D. C. "The Magic Barrel" by a speaker from E. I. du Pont de Nemours & Co., Wilmington, Del.; and talk, subject to be announced, by Walter Harrison Smith, of Walter Harrison Smith Productions, New York.

Wednesday afternoon, Dec. 5

Joint session of AUTOMOTIVE AND AEROSOL DIVISIONS, "Pressurized Packages for Automotive Use," by J. M. Kimmel, DeMart & Dougherty, Inc., Chicago; "Du Pont Survey on Aerosols," by R. A. Crane, manager of market research, E. I. du Pont de Nemours & Co.

Joint session of DISINFECTANTS AND SANITIZERS AND SOAPS, DETERGENTS AND SANITARY PRODUCTS DIVISIONS, "The Use of Quaternary Ammonium Compounds in the Dairy Industry as Influenced by the Revised Appendix F of the Milk Ordinance and Code of the United States Public Health Service," by Myron W. Cucci, Milk Plant Specialties Corp., Rochester, N. Y.; "Interpretations Regarding Quaternaries Under Recently Revised Appendix F of the Milk Ordinance and Code," by M. A. Robertson, Milk and Food Division, U.S. Public Health Service, Washington.

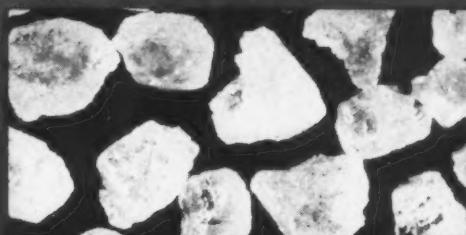
INSECTICIDE DIVISION, "Interesting Facets of Consulting Laboratories," by George S. Kido, Wisconsin Alumni Research Foundation, Madison, Wis.; "The Use of Radioactive Materials in the Studies of the Mode of Action of Insecticides," by K. D. Quartermann, U.S. Public Health Service, Savannah, Ga.; "Attractants and Repellants," by V. G. Dethier, Johns Hopkins University, Baltimore; "Biological Data Using Formulae Containing Sesamolin and the Synergist 2-(ethoxy-ethoxy) ethyl 3,4-methylenedioxyphenyl acetal," by John H. Fales, U.S. Department of Agriculture, Washington, D. C.

WAXES AND FLOOR FINISHES DIVISION, "Wax Filtration," by T. M. Jackson, Jr., Johns Manville Corp., Celite Division, New York; "Resins for Use in Resin Finishes," by Charles O'Connor, Shanco Plastics & Chemicals, Inc., Tonawanda, N. Y.; "Comparative Evaluation of the Dura Slip Resistance Tester versus the James Machine on Waxed and Unwaxed Flooring Surfaces," by Bernard Berkeley, Foster D. Snell, Inc., New York; report of the scientific committee by Donald E. Whyte, S. C. Johnson & Son, Inc., Racine, Wis.; "Final Report—Floor Finishes, Water Emulsion, Non-Buffable," by James B. Snider, chief, commodity section 2, Standardization Division, Federal Supply Service, General Services Administration, Washington, D. C.; "Aspect of Patents in the Chemical Specialty Field," by Walter Newcomb, Paul & Paul, Philadelphia; "Volatility of Amines," by A. B. Steele, Carbide and Carbon Chemicals Corp., New York.

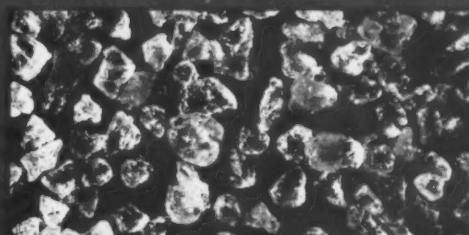
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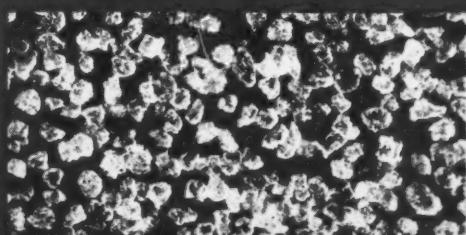
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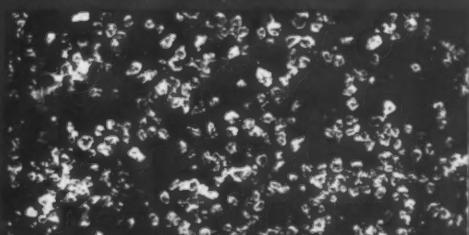
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Ultracera	195 Min.	4 Max.	1½ Max.	Nil	Nil
Petrolite C-1035	195 Min.	2 Max.	1½ Max.	Nil	Nil
Petronauba C	180 Min.	7 Max.	3 Max.	22-28	50-60
Petronauba D	185 Min.	5 Max.	6 Max.	20-28	50-60
Petronauba F	180 Min.	5 Max.	3 Max.	15-25	50-60
Petrolite C-15	180 Min.	4-6	4-5	15-17	45-55
Petrolite C-23	180 Min.	4-6	4-5	20-25	55-65
Petrolite C-36	180 Min.	5-7	4-6	30-35	75-85
Petrolite PE 100	195-200	2-3	4-6	15-20	45-55
Petrolite R 50*	190-200	2 Max.	4½ Max.	40-50	65-80
Petrolite P 20	210-220	2 Max.	3 Max.	Nil	Nil
Petrolite P 25	210-220	2 Max.	3 Max.	Nil	Nil

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Specific Heat cal./g./°C. or B.T.U. lb. °F.	
Liquid (20°C.).....	0.276
Vapor (cp) (B.P., 1 atm.).....	0.152
Specific Gravity 20 4°C.....	1.326
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High Court Upholds Aerosol Shave Patent

UNLESS an application for a rehearing before the U. S. Supreme Court is filed by Colgate-Palmolive Co., New York, in the patent suit involving aerosol shave products, the next step will be a hearing before a special master to determine the amount of damages for which Colgate and other defendants are liable. Colgate has not as yet announced its intention to file an application for a rehearing.

A petition for a writ of certiorari by Colgate was denied by the Supreme Court on Oct. 8. If the high court had granted the petition, it would have meant that the case would have to be reargued before the Supreme Court. Two lower courts, the United States Court of Appeals for the fourth circuit, in Baltimore, and the U. S. Federal District Court in Baltimore, both upheld the validity of the so-called Carter patent, its infringement and the appropriation of trade secrets by the defendants.

The patent in question, originally issued to Joseph G. Spitzer, Irving Reich and Norman Fine, was assigned by Messrs. Reich and Fine to Mr. Spitzer, who with Marvin Small, licensed the patent to Carter Products, Inc., New York, on an exclusive basis. The patent, U. S. No. 2,655,480, covering "Lather producing composition" is the basis for Carter's aerosol shave cream, "Rise."

The defendants in the original suit included Colgate, Noxzema Chemical Co., Stalfort Pressure-Pak Corp., John C. Stalfort & Sons, Inc., and Read Drug & Chemical Co., the latter four of Baltimore.

By upholding the findings of the lower courts, the Supreme Court ruled, in effect, that Carter has exclusive patent rights to aerosol dispensed shave lathers. Whether the patent covers other types of soap based products, such as shampoos and hand cleaners, is not known at this time. Further litigation will be required to de-

termine this. However, Procter & Gamble Co., Cincinnati, has obtained a license from Carter Products for tests of its "Prell" aerosol shampoo. P&G also test marketed "Drene" shampoo in aerosol form. The product was packed in a plastic coated glass bottle. American Home Products and others are also understood to have obtained licenses from Carter for their aerosol shave products.

Colgate had contested the patent on the grounds that Carter had merely combined known ingredients to perform a known purpose and therefore the patent was invalid. It also contended that the patent would enable Carter to "monopolize the use of pressure packaging by the soap industry."

As a result of the action of the Supreme Court, infringement suits running up into the millions of dollars loom for marketers of shave products. Aerosol shave products using propellants other than those specified in the Carter patent are being marketed and are thus felt to be outside the coverage of the patent.

It is understood that Carter is not contemplating legal action at this time against other producers or marketers of aerosol shave products who have not obtained licenses. The firm also is said not to have examined all of the aerosol shave creams on the market today, but according to H. H. Hoyt, president of Carter, the firm feels such products do fall within its patent.

— ★ —

SAACI Sales Clinic

A plea for the chemical industry to support the U. S. reserve program was made during the fifth annual chemical sales clinic of the Salesmen's Association of the American Chemical Industry, held at the Hotel Commodore, New York, Oct. 15. The appeal was made by Carter L. Burgess, assistant Secretary of Defense for manpower, personnel and reserve. The secretary discussed the critical skill program and the six months training pro-

gram for youths seventeen and eighteen and one half years of age. Under the critical skill program, Mr. Burgess explained, certain workers over twenty in defense supporting industry or research may enlist in the reserve for 16 months. The remaining 18 months of their military obligation is fulfilled in the ready or standby reserve.

Other speakers at the clinic included Werner C. Brown, director of sales for the cellulose products department of Hercules Powder Co. He discussed the importance of the salesman planning ahead.

Salesmen were advised by C. H. Beard, general traffic manager of Union Carbide & Carbon Corp., New York, to learn all they can about traffic, but he warned against salesmen acting as traffic managers.

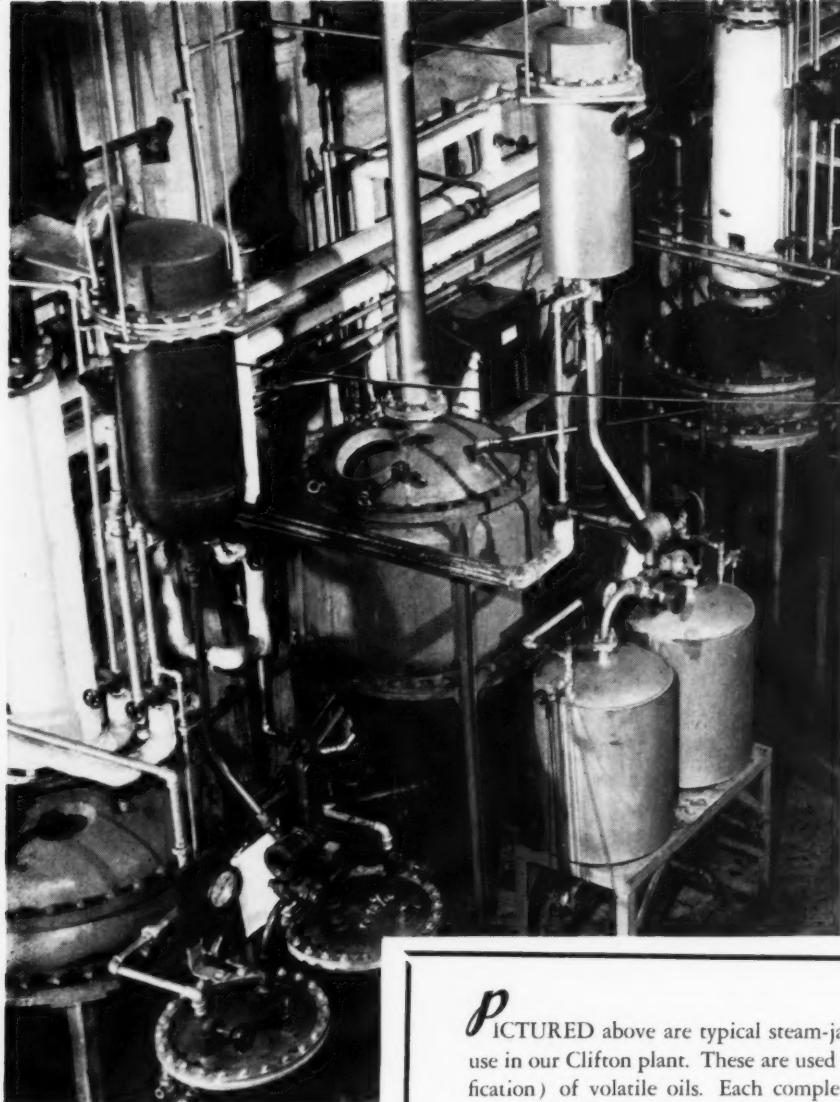
New Borax Fire Aid

United States Borax & Chemical Corp., Los Angeles, recently announced the development of a new forest firefighting aid called "Firebreak." The new product is a sodium-calcium borate preparation which is mixed with water at the rate of four to six pounds per gallon. It can be applied from low flying airplanes.

Another Sanitation Show

A second International Sanitation and Maintenance Show and Conference is planned for 1957, it was announced following the first show and conference, held at the New York Coliseum, Oct. 14-16. Time and place of next year's show and meeting has not been set as yet.

Over 70 exhibitors of sanitary chemicals and equipment had booths at the first show including: Fuld Brothers, Inc., Baltimore; American Detergent Co., Brooklyn; West Disinfecting Co., Long Island City, N. Y.; Trio Chemical Works, Brooklyn; Oil Specialties & Refining Co., Brooklyn; Colgate-Palmolive Co., New York; John T. Stanley Co., New York; Multi-Clean Products Co., St. Paul and C. B. Dolge Co., Westport, N. Y.



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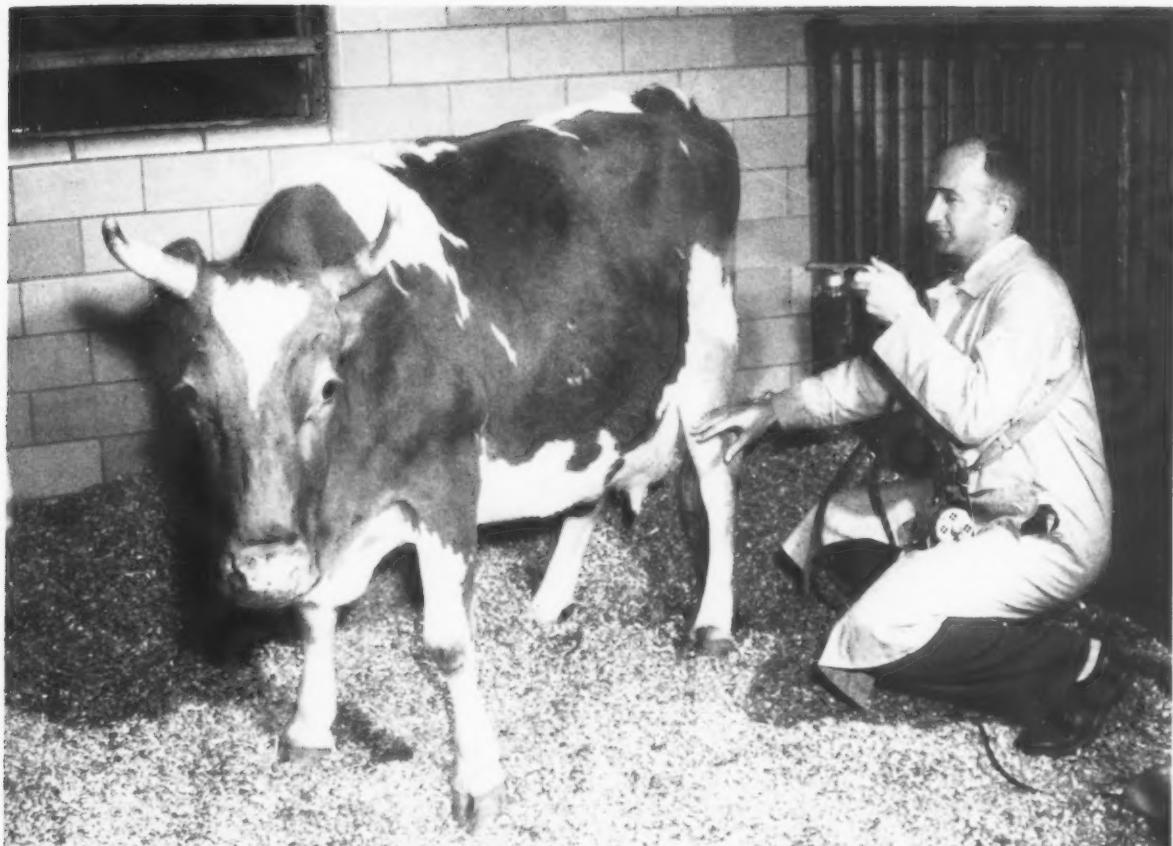


Photo courtesy Carbide and Carbon Chemicals Co.

Dairy Cattle Sprays—

Do they pay?

By Philip Granett and Elton J. Hansens

Department of Entomology
New Jersey Agricultural Experiment Station
Rutgers University, New Brunswick, N. J.

HERE has been much conjecture regarding the economic advisability of spraying dairy cattle for fly control. For this reason, test was designed to note whether cows sprayed for fly protection actually yield more milk.

The test was conducted in Salem County, N. J., during 1955, with fifteen Holstein cows divided into three groups of approximately equal milk production and fly susceptibility. For a period of ten weeks, each cow in one group (A)

was sprayed weekly with a 10 percent methoxychlor formulation diluted with water; all animals in the second group (B) were sprayed with emulsifiable concentrate F-21 diluted with water; the third group (C) was untreated.

The test was conducted from June 14 to August 30, 1955.

Treatment

GROUP A—Each cow was sprayed weekly with approximately one quart of the following

Use of new emulsifiable concentrate "F-21" for fly control increased milk yield, which more than offset cost of spray. Frequent spraying found best.

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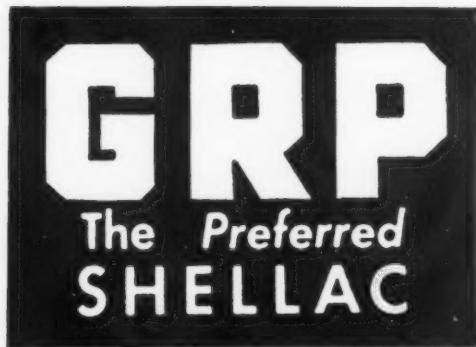


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formulation, one part of which was diluted in 19 parts of water:

10% Methoxychlor
8% Triton X-188
82% Sovacide 544-C

Group B – Each cow was sprayed weekly with approximately one quart of emulsifiable concentrate F-21, one part of which was diluted in nine parts of water. F-21 consists of:

50% Crag fly repellent
5% Methoxychlor
8% Triton X-188
37% Sovacide 544-C

Group C was given no treatment.

Poison baits were applied daily to the barn floor to control house flies.

Preliminary Observations

INDIVIDUAL milk production of all the cows was determined for two weeks prior to treatment. Daily counts of flies were also made during this period. On the basis of these records, the cows were divided into three groups of approximately equal milk production and susceptibility to flies.

Spray Application

AFTER milking, the cows in group C were released from the barn. Group A was then sprayed with the diluted methoxychlor formulation from a knapsack sprayer. These cows were then released, and group B was sprayed with the diluted F-21 formulation from a knapsack sprayer. Treatments were made weekly thereafter.¹

¹ Acknowledgement is extended for the dependable work of Ed Gant for applying sprays and making fly counts.

Table 1. Summary of average daily milk production per cow

Weekly Interval	A	B	C
Prior to spraying	33.5 lb.	33.4 lb.	33.6 lb.
6/15-6/21	29.3 lb.	33.1 lb.	26.8 lb.
6/22-6/28	28.7	29.7	23.5
6/29-7/5	27.9	29.3	25.5
7/6 -7/12	26.4	27.3	24.5
7/13-7/19	24.5	27.9	24.8
7/20-7/26	21.2	25.4	25.3*
7/27-8/2	20.4	24.0	24.5*
8/3 -8/9	19.0	22.6	23.1*
8/10-8/16	19.1	24.1	22.5*
8/17-8/23	15.9	21.3**	22.4*
Not sprayed	15.1	21.4	22.5*

* One cow reached end of lactation period.

** One cow not sprayed.

Table 2. Summary of average daily fly count per cow

Weekly Interval	A	B	C
Prior to Spray	15.5	15.5	12.8
6/15-6/21	8.5	5.0	20.1
6/22-6/28	12.8	6.2	20.8
6/29-7/5	15.5	11.4	19.7
7/6 -7/12	12.9	8.0	17.8
7/13-7/19	12.8	9.6	19.2
7/20-7/26	17.8	11.6	19.9
7/27-8/2	10.4	6.5	12.6
8/3 -8/9	9.3	4.0	15.3
8/10-8/16	6.3	5.6	11.8
8/17-8/23	10.3	7.9*	11.4
Not sprayed	26.3	23.2	30.2

* One cow not sprayed.

Milk Production

ALL cows were milked twice a day and an individual record was kept for each cow. Average production is shown in Table 1.

Insect Counts

OBSERVATIONS were made in the pasture and counts were taken Monday through Friday, weather permitting. Horn flies (*Siphona irritans*), predominated during June and early July, then stable flies (*Stomoxys calcitrans*) became more abundant. *Tabanus* spp. and *Chrysops* spp. were also present in June and July. Mosquitoes (*Aedes* spp.) became abundant in August.

The weather in June and July was exceptionally hot and dry, and August was hot and wet.

Results

THE figures in Tables 1 and 2 indicate that the cows sprayed with emulsifiable concentrate F-21 gave more milk and had superior protection against fly attack. Individual records show that both groups A and B had good protection against flies on the first and second days after spraying. Milk

production records also show that group B produced significantly higher yields of milk on the second and third days after spraying, while group A's production was significantly higher on the second day only.

During a five week period, there was an added yield of 214 pounds of milk for the cows treated with F-21 over the untreated group. With milk at five cents per pound and the cost of F-21 deducted, the cows treated with F-21 gave an added profit of about \$1.40 per cow.

The cost of F-21 is estimated as 80 cents per cow for a five weeks period, and the cost of the methoxychlor spray at 20 cents per cow for the same period. For the difference of 60 cents per cow, there was an increase of about 20 pounds of milk when F-21 was used. With the cost of milk at about five cents per pound, then, there was an added profit of 40 cents per cow by using F-21 rather than the comparison formulation.

Conclusions

ON THE basis of this test, it certainly appears advisable for dairymen to spray their cows for fly protection. There was a definite increase in milk yield for both treated groups, and the use of emulsifiable concentrate F-21 more than paid for the higher cost of this formulation.

It may prove even more profitable to spray more often than once a week; perhaps every four days, since milk production was highest on the second and third days after spraying.



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Technical BRIEFS

Determination of Borax in Borax-Cut Shellac

By W. K. Miller, O. Tweet, R. H. Simon
and D. E. Whyte*

S. C. Johnson & Son, Inc.
Racine, Wis.

In order to control the borax content of borax-cut shellac used as an intermediate in the production of emulsion type wax products, it was necessary to develop a method for determining borax in the presence of shellac. Determinations of the ash content and measurements of such physical properties as viscosity and refractive index failed to yield a method by which the borax content of the solution could be determined accurately. The failure of these techniques to serve as a rapid method prompted the study of titration procedures as a means of determining the borax content of the material. As a result of this investigation a method has been developed which involves an extraction with butanol to remove the shellac followed by a titration of boric acid in the aqueous phase.

The direct titration of borax in the presence of shellac was not possible because of the precipitation of shellac on acidification of the sample. Attempts were made to add an excess of standard acid, filter the precipitated shellac, and titrate the excess acid in the filtrate. A diatomaceous filter aid was used in an effort to coagulate the shellac into an easily filterable precipitate, but the filtration was extremely slow, and the results of subsequent titrations were not promising. It was evident that a separation of borax from shellac must be effected before a successful titration can be accomplished.

* Paper presented during the 40th annual meeting of the Chemical Specialties Manufacturers Association, Washington, D. C., Dec. 7-8, 1954.

The sample can be ignited in the presence of a small amount of fixed alkali or sodium carbonate, under which conditions all of the borax will be retained as sodium metaborate and can be subsequently dissolved, acidified, and titrated as boric acid. Alternatively, the borax might be separated from the shellac by distillation as methyl borate (1) prior to the titration. These procedures, however, are much too time-consuming to be used as control methods.

A rapid and more logical means of separation would involve an extraction of the shellac into an organic solvent. A survey of the literature did not reveal any methods of determining borax in borax-cut shellac, but numerous methods for the determination of borax in soap, cosmetics and medications have been reported. Most of the procedures involve an initial ashing of the sample, but Blank and Troy (2) separated the fatty acids of the soap from water soluble in-

Table I. Determination of Borax in Borax-Cut Shellac

Sample No.	Known	Borax, Percent Found*	Difference
A-1	5.04	5.04	0.00
A-2	5.32	5.32	0.00
A-3	5.60	5.64	0.04
A-4	5.88	5.94	0.06
A-5	6.16	6.18	0.02
B-1	5.04	5.04	0.00
B-2	5.32	5.32	0.00
B-3	5.60	5.65	0.05
B-4	5.88	5.85	0.03
B-5	6.16	6.20	0.04

Estimated standard deviation, percent (absolute) 0.02
Estimated standard deviation, percent (relative) 0.4

* The reported results represent an average of two determinations.

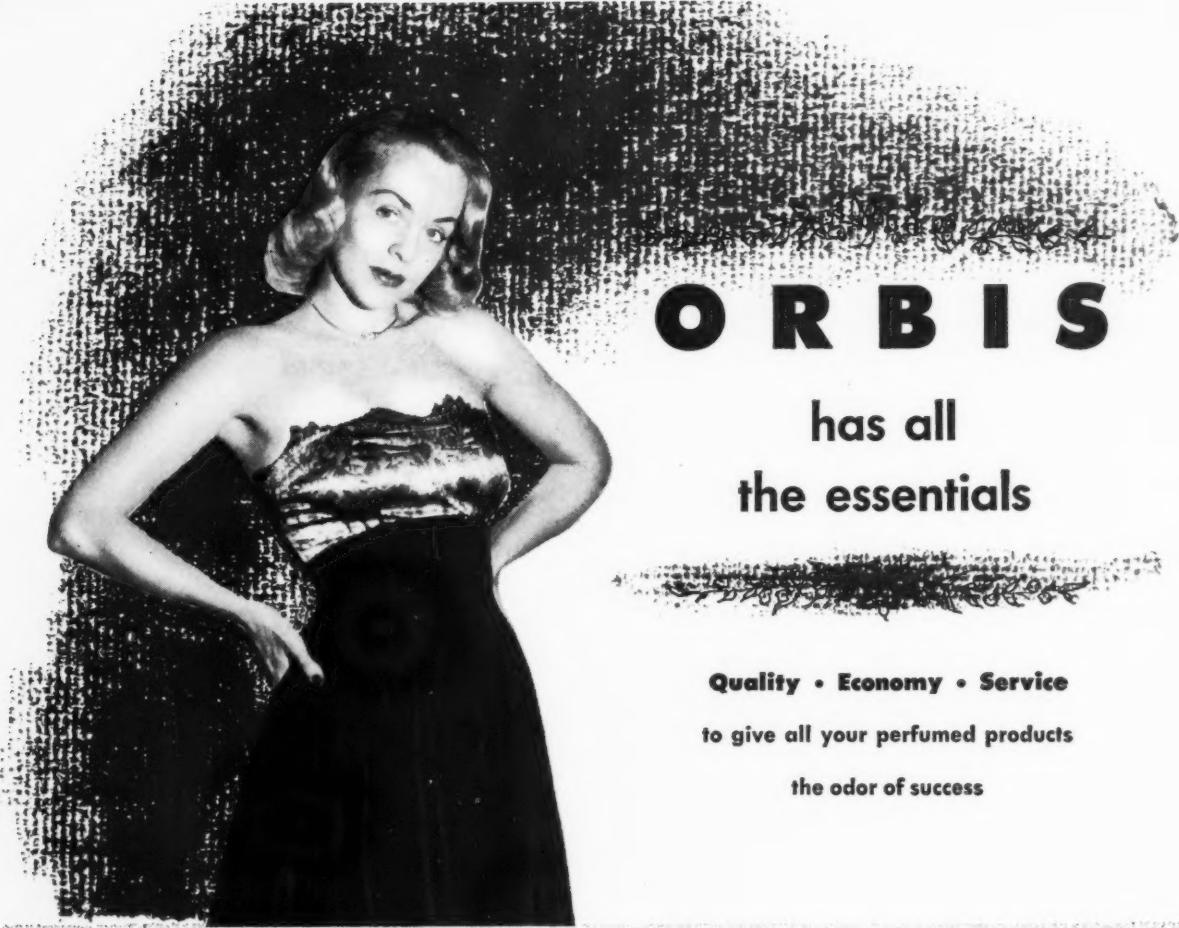
redients including borax by an extraction with petroleum ether. Boric acid has been determined in boric acid ointment (3) by extracting the acid with water from a benzene solution of the ointment. The final step in almost every procedure is the well known titration of boric acid in the presence of a polyhydroxy compound such as mannitol.

Experimental

Since ethyl alcohol is known to be an excellent solvent for shellac, it was predicted that n-butanol, which is water insoluble, would likely extract shellac from the aqueous, borax-cut material. The extraction was not possible in the slightly alkaline intermediate, but on acidification the shellac was completely absorbed by the organic layer in a system containing equal volumes of butanol and water. Determination of borax by titration of the aqueous layer revealed that only two-thirds of the borax remained in the water layer. This figure is in agreement with the work of Griffin and von Saaf (4) in which they showed that the extraction coefficient of boric acid in the water-isoamyl alcohol system is 3.15. The water-butanol system would be expected to exhibit similar partition properties to those of water and isoamyl alcohol. By washing the butanol layer twice more with equivalent volumes of water, an almost complete recovery of borax was obtained in the combined aqueous layers. Three extractions, therefore, were incorporated into the adopted method.

Briefly the method consists of the extraction of a dilute, acidified sample with n-butanol, two back wash extractions of the butanol layer with water, adjustment of the acidity of the combined aqueous layers to the methyl red end point, and titration of the resulting solution with standard alkali in the presence of mannitol using phenolphthalein as the indicator. Two series of samples of borax-cut shellac containing known amounts of

(Turn to Page 157)



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Non-flammable Paint Strippers

Part III—Activators, Thickeners, Evaporation Retarders

By **Bernard Berkeley and Daniel Schoenholz**

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Conclusion

Evaporation Retarders

WE are all aware that chlorinated hydrocarbons, such as methylene chloride and oil remover solvents are so highly volatile that they would completely evaporate from a surface before causing any worthwhile removal effect on the finish. In order to realize the full benefits of the solvent remover it is necessary that the rate of evaporation be greatly reduced. The use of wax for this purpose is perhaps as well known as is the need for evaporation retarders. However, it remained for C. Ellis, at the turn of the century, and B. Lougovoy, some thirty years later, to define the role of waxes in a series of patents issued to Chadeloid Chemical Co. between 1900-1943.

It has generally been accepted that when a paint remover is applied to a surface, sufficient solvent evaporation and cooling effect occurs to cause surface precipitation of wax thus forming a film of wax particles which greatly impede further vaporization. The wax film has been described by investigators as being in finely-divided or gelatinous form, or suspended in a semi-colloidal state, or as microscopic crystals.

The formation of the film is influenced by the solubility of the retardant in the solvent base. Ideal-

ly, the evaporation retardant should be on the borderline of being soluble, so that any loss of solvent results in the retardant being thrown out of solution. In the case of paraffin wax, its solubility in methylene chloride has been reported as ranging from four to twelve percent by weight at 70°F., depending on the melting point of the wax. The addition of a non-wax solvent, such as methanol to methylene chloride, reduces the solubility of paraffin wax. Further, the solubility of waxes is greatly reduced as the temperature decreases. As solvent evaporates from a surface a cooling effect occurs which appreciably lowers the surface temperature. This action causes the wax to be thrown out of solution in a form which is characteristic of the crystal structure of the wax. In general, the rapid chilling of a wax solution results in smaller particles than would be obtained by a gradual increase in wax solids due to loss of solvent.

Ellis pointed out in U. S. Patent 2,327,701 that the paraffin wax film, "Appears to be crystalline in character and brittle. Furthermore, when viewed closely the wax film seems to contain small minute openings through which continued evaporation of liquid slowly occurs. As the wax film increases in thickness these openings may become larger and eventually breaks in the film will be formed." Ellis reported

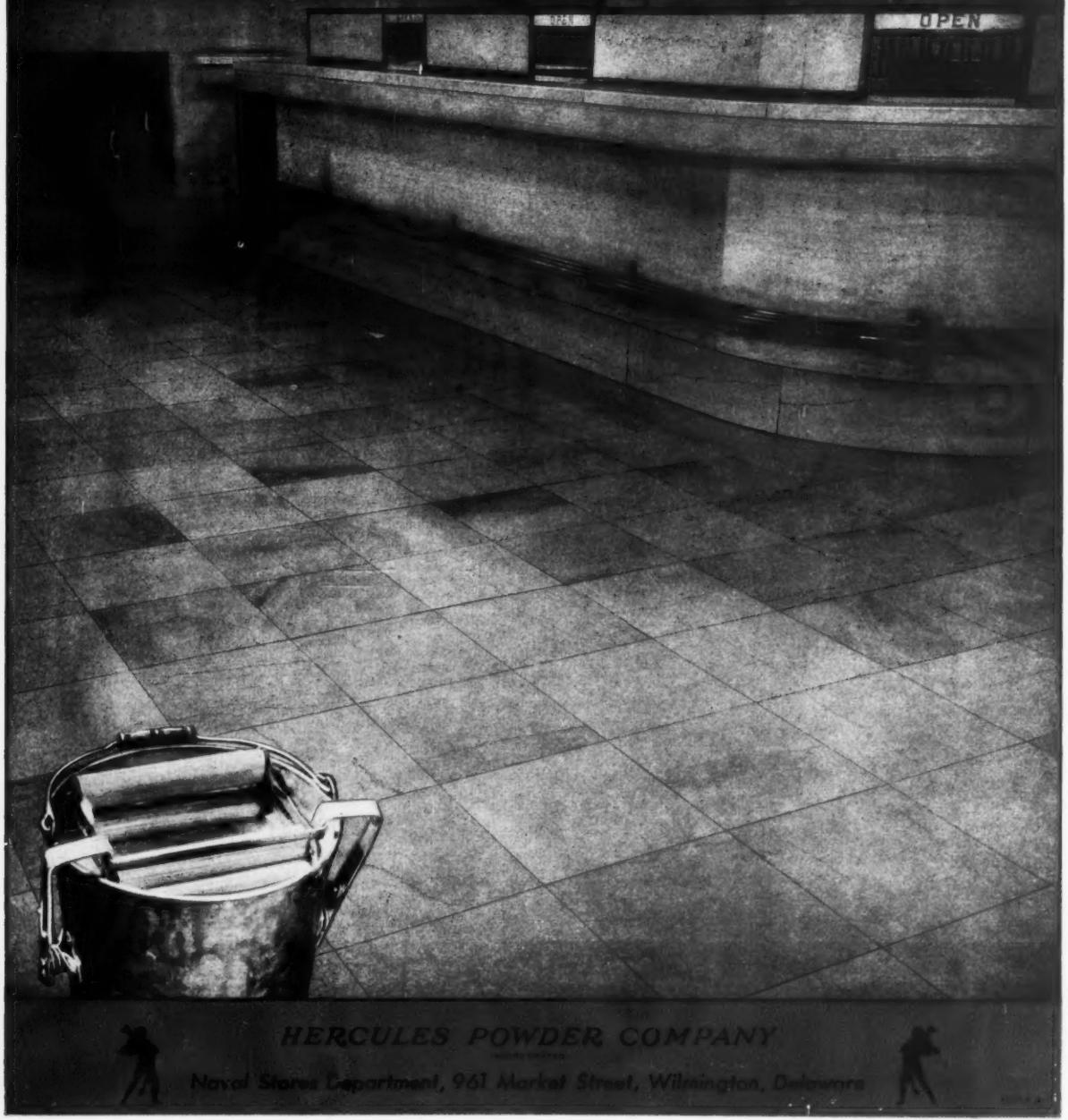
that the use of nitrated or halogenated paraffin wax, when used in conjunction with ordinary paraffin wax, would yield a plasticized film having smaller openings or breaks through which solvent could evaporate.

The use of wax in paint removers is maintained at the lowest possible concentration for two reasons. Wax tends to reduce the speed of action of many solvents, and residual wax on a stripped surface may interfere with the recoating process. The former characteristic is probably due to a combination of factors, the major one being the formation of a wax barrier on the surface layer of the finish. The latter difficulty has occasioned the use of so-called "paintable retarders" which are soluble in the paint vehicle. It has been speculated that retarders having low solubility in paint removers systems will be precipitated from solution onto the paint as the solvents are absorbed into the coating, or as the solvent evaporates. Thus, when the finish is scraped off the surface, the wax should be completely removed. This reasoning is, of course, invalid when the coating is discontinuous due to partial removal, extreme wrinkling and rupture of the paint film. For this reason, the precaution of flushing the stripped finish with a good wax solvent following the application of paint remover appears to be advisable.

* Paper presented before the Aerosol Division during the 42nd midyear meeting, Chemical Specialties Manufacturers Association, Chicago, May 22, 1956.

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Table X. Efficiency and Compatibility of Various Evaporation Retarders

General Formula		
Retarder	Appearance of Solution	% Evaporated (Method TT-R-00251c)
Methylene chloride	Clear	94.1%
Methanol	Clear	2.9%
Ethyl Cellulose, K-5000	Incompatible	1.5%
Evaporation Retarder	Clear	1.5%
Paraffin wax, m.p. 125°F.	Clear	2.6
Scale wax	Clear	2.8
A. C. Polyethylene ACP 629	Incompatible	—
A. C. Polyethylene #6 Hard	Incompatible	—
Lorol 28 (octadecyl alcohol)	Clear	70.6
Behenic acid	Hazy	44.9
Span 65 (sorbitan tristearate)	Clear	64.2
Tween 61 (polyoxyethylene sorbitan monostearate)	Clear	86.1
Tween 65 (polyoxyethylene sorbitan tristearate)	Clear	92.4
Atlas G 672 (glycerol sorbitan laurate)	Hazy	84.6
Atlas G 7426 N (polyoxyethylene sorbitan mono-palmitate)	Clear	88.3
Atlas G 891 (sorbitan ester mixed fatty and resin acid)	Brown	70.8
Atlas G 1734 (polyoxyethylene sorbitol beeswax derivative)	Hazy	29.1
Myrj 49 (polyoxyethylene stearate)	Clear	91.8
Zinc stearate	Milky dispersion	87.1
Calcium stearate	Milky dispersion	72.4
Magnesium stearate	Milky dispersion	86.6
Aluminum stearate	Incompatible	—

There is a scarcity of examples given in the literature of satisfactory "wax-free paint removers". Two such compositions which have been suggested are described below:

Parts by Wt.

Methylene chloride	95.8%
Cellulose acetate (TH-1 or TH-2)	2.8%
Mannitan stearate (Atlas G-908)	1.4%
	100.0%

Parts by Wt.

Methylene chloride	91.4%
Secondary butyl acetate	3.1%
Cellulose acetate (TH-5)	3.7%
Sorbitan stearate (Span 60)	1.8%
	100.0%

Table XI. Effect on Evaporation Due to Variation in Methanol Content—% Evaporated

(Paraffin, 125°F.—1.5%, Thickener—1.0%)

Ratio of Methylene Chloride to Methanol

	97.5/0	94.5/3.0	91.5/6.0	88.5/9.0
Methocel 4000 cps.	22	2.5	3.0	3.4
Ethocel K-5000 +	21	2.8	3.7	3.0
Cellulose acetate TH-4	—	3.2	4.1	4.6
Cellulose acetate WH-2	—	1.3	2.6	—

The removal properties of these products are poor when compared to the usual scrape-off formulations containing a combination of methylene chloride and methanol.

Table XII. Evaporation Rates with Miscellaneous Co-solvents

	1	2	3	4	5	6	7	8	9	10	11	12
Paraffin wax, m.p. 125°F.	3.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Ethyl cellulose K-5000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	—	—	—	—	—
Cellulose acetate WH-2	—	—	—	—	—	—	—	—	—	—	—	—
Methylene chloride	91.0	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5
Methanol	—	3.0	—	3.0	—	3.0	—	3.0	—	3.0	—	3.0
Toluol	5.0	3.0	—	3.0	—	3.0	—	3.0	—	3.0	—	3.0
Acetone	—	—	6.0	—	—	—	—	—	—	—	—	—
Butanol	—	—	—	3.0	—	—	—	—	—	—	3.0	—
Mineral Spirits	—	—	—	—	3.0	—	—	—	—	—	3.0	—
V.M.&P. Naphtha	—	—	—	—	—	3.0	—	—	—	—	—	3.0
Methyl Isobutyl Ketone	—	—	—	—	—	—	6.0	—	—	—	—	—
Evaporation Rate, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	7.0	9.6	12	27.4	4.4	4.9	15	27.5	6.4	36.6	16	12

If methanol were added to the described blends, the retarders would be solubilized to the extent that they would not function to prevent solvent loss.

Evaluation of Retarders

A SERIES of evaporation tests were conducted in accordance with the method outlined in Specification TT-R-00251c with various classes of materials in an attempt to find evaporation retarders suitable for use in methylene chloride paint removers. The results of those tests are summarized in Table X.

The evaporation data shown in the foregoing table illustrates the preference for paraffin as an evaporation retarder. The only non-paraffin materials which showed promise as retarders in the presence of methanol were Atlas G 1734 and behenic acid. The former is a beeswax derivative. The latter is a fatty acid having a long hydrocarbon structure. Whether these materials will interfere with paintability remains to be ascertained.

Tests with Paraffin

THE evaporation rate properties of mixtures consisting of varying ratios of methylene chloride and methanol with constant concentrations of paraffin wax and thickeners were studied in order to determine the range of usefulness of paraffin wax. The results of these experiments are summarized in



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Table XIII. Evaporation Rates with Various Thickeners and Retarders

	Solvent Blend	3% Cellulose Acetate TH-5		
		2.5% Ethyl Cellulose	1.0% Methocel	3% Cellulose Acetate TH-5
Methylene chloride		86%		
Methanol		8-10%		
3% Paraffin Wax, m.p. 125°F.	2.2%	1.3%	1.5%	
3% Scale Wax	2.5%	3.8%	2.4%	
3% Atlas G 1734	37.3%	3.2%	15.6%	

Table XI. Evaporation rates were determined by the method outlined in Specification TT-R-00251c.

There is considerable loss of solvent when methylene chloride is used alone. However, with the addition of small quantities of methanol evaporation is drastically reduced. This same effect occurs when other non-wax solvents, such as water, are blended with methylene chloride. Increasing the methanol content up to nine percent does not significantly alter the evaporation properties of the blend.

Solvents which are capable of dissolving wax should not be used as a co-solvent in scrape-off removers because of their deleterious effect on evaporation rate. However, flush-off formulations which usually contain relatively large quantities of wax precipitants, such as water, require wax solvents to maintain homogeneity of solution. The relative performances of various co-solvents are illustrated in Table XII.

Additional evaporation data was obtained with paraffin wax, scale wax, and Atlas G 1734 in the presence of three types of thickeners.

These results are given in Table XIII.

Paraffin and scale waxes proved to be effective with the three types of thickeners, while the performance of Atlas G 1734 varied with each thickener.

Conclusions

THE presence of activators greatly improves the performance of methylene chloride paint strippers. Optimum improvement in performance depends largely on the binary solvent mixture and the type of organic coating to be removed.

Currently the most useful thickening agents are ethyl cellulose, cellulose acetate and methyl cellulose. A promising new material which deserves further careful study is the propylene derivative of cellulose. When available, high viscosity grades of ethyl hydroxy ethyl cellulose and cellulose acetate sorbate should be investigated for potential application in flush-off removers.

Additional investigatory work is required to develop "wax-free" paint strippers which can match the effective removal power of present day wax-type compounds.

Chlorosulfonic Acid Data

Chlorosulfonic acid and its use as a sulfonating agent in the manufacture of detergents, dye intermediates and pharmaceuticals is discussed in a new bulletin recent-

ly issued by the inorganic chemical division of Monsanto Chemical Co., St. Louis.

The bulletin, which features a bibliography of chemical abstracts relating to chlorosulfonic acid, also describes physical and chemical properties, analysis, typical reactions, handling and corrosion characteristics, toxicity and safety data of these abstracts.

Copies are available from the firm's inorganic chemical division, St. Louis 1, Mo.

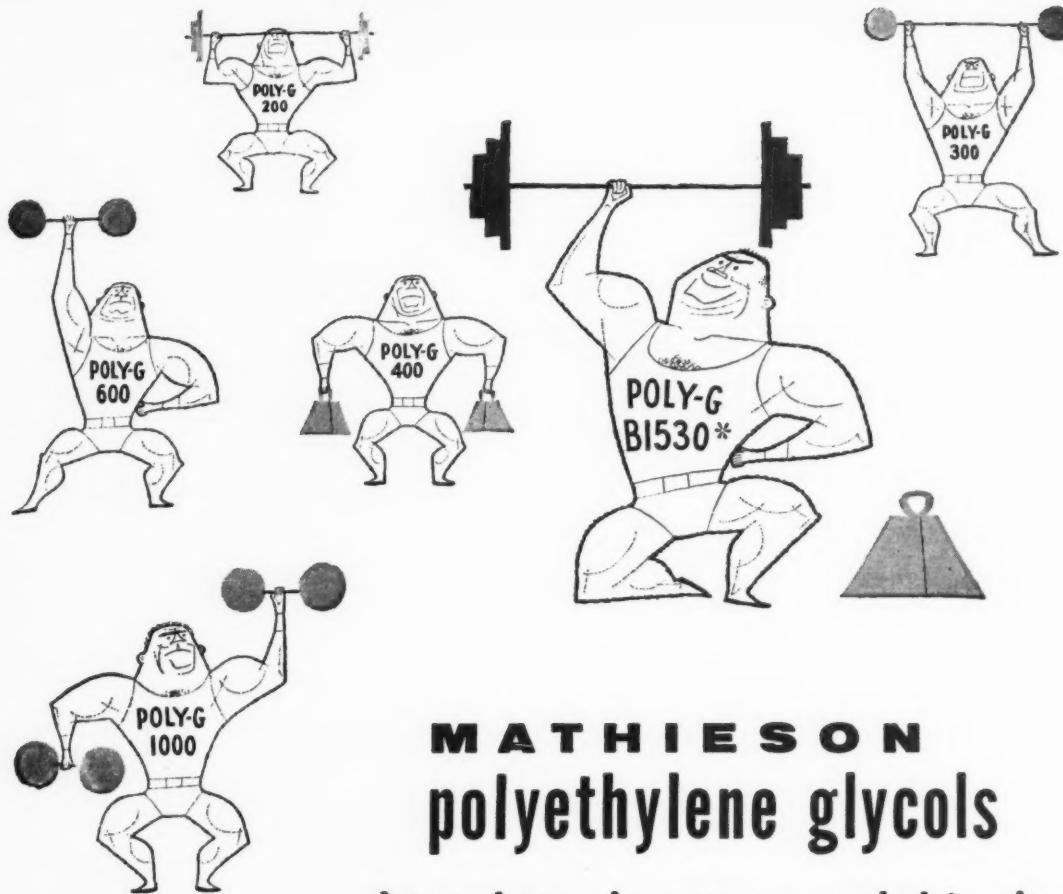
New Colloid Mill

Chemical Colloid Laboratories, Inc., Garden City, N. Y., has introduced a new large size colloid mill designed to offer 20 to 40 percent more production capacity in the handling of emulsions and heavy production chemicals, it was announced recently.

The unit, which is powered with a 125 h.p. motor and handles viscous materials up to 25,000-pounds per hour, features a front-end removable shaft seal for non-abrasives, and a flushed seal for hazardous service or conventional packing. The mill is fed and discharged under constant pressure eliminating aeration of the product being handled. Rotor and stator type grooving produce stable emulsions, fine dispersions and uniformly suspended solids through a closed and continuous system. Construction is of cast iron with hardened steel rotor, stator and shaft. The unit is also available in several smaller sizes.

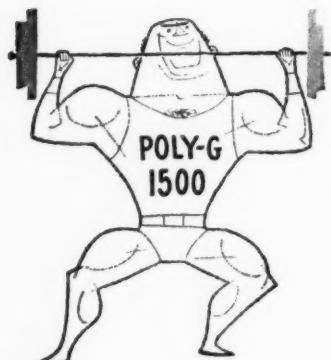
Appendix. Paint Systems Tested

System	Type	Product	Manufacturer	Primer	System
A-1	Polyvinyl acetate	Solite Finishes Quick Drying Wall Sealer Emulsion Type-White	Pittsburgh Plate Glass Co.	1 coat	1 coat
B-3	Phenolic, Air	Unichrome A-143-3 Gray	United Chromium Corp.	1 coat	
B-4	Phenolic, Baked	Unichrome B-124-17 Gray	United Chromium Corp.	1 coat	
D-6	Urea-Melamine (350F.—10 Min.)	Baking Synthetic Coating B 115 Clear	United Chromium Corp.	1 coat	
E-1	Nitrocellulose	Unichrome Air Drying Lacquer A-112 Clear	United Chromium Corp.	1 coat	
E-4	Cellulose acetate butyrate	Unichrome B-138 Clear	United Chromium Corp.	1 coat	
F-2	Modified phenolic	Unichrome Primer AP No. 10 (ZnCrO ₄)	United Chromium Corp.	2 coats	
F-5	Polyvinyl butyrate	Uclon 441 Solution & 441 Accelerator (ZnCrO ₄ , Wash Primer)	United Chromium Corp.	2 coats	
G-1	White shellac	White Pure Shellac 4 lb. cut	Pinta Paint Products Co.	1 coat	



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Bacteria in Emulsion Oils (From Page 48)

dividually with inhibitors. Just because a compound has been reported to be an effective cutting oil inhibitor does not mean that it is effective in all formulations.

Not Always Effective

IT MUST be remembered that an inhibitor will not always be effective in every situation. A large bacterial population is continually changing through mutation. If the conditions are optimum, mutants may develop that are resistant to the inhibitor and the emulsion will spoil. It would be wise to change inhibitors in a commercial emulsion at regular intervals so that the development of resistant forms might be reduced. Another possibility would be the use of combiotic inhibition or the use of two or more inhibitors simultaneously in the same emulsion.

Bacterial inhibitors in emulsion oils are intended to be used in conjunction with good industrial hygiene to retard spoilage of the emulsion. No matter how effective the inhibitor might be if it is used in a plant where it is overwhelmed by gross bacterial contamination it cannot be expected to function satisfactorily. Workers should not be allowed to spit, urinate or throw portions of their lunches into the emulsions. Pure water should be used to make the coolant. Good industrial sanitation is as important as the antibacterial agent in prolonging the life of the emulsion.

Tables 1 and 2 consist of a compilation of all available pub-

lished and unpublished research pertaining to the study of bacterial inhibitors for emulsion oils. Instances where more than one reference is given for a single compound indicate studies of that compound in different commercial emulsions. It is hoped that these tables will serve as check lists by individuals responsible for developing bacterial inhibitors for emulsion oils. Duplication of results should be reduced so that additional new compounds can be studied.

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N. Y. Cos. Chems. Meet

The New York Chapter of the Society of Cosmetic Chemists has held its monthly meeting Oct. 24 at 6:30 P.M. at the Brass Rail restaurant, New York, it was announced recently. Featured speaker was A. L. Scarbrough of the new products development department of National Lead Co., New York, who will present a "Rheology Review for Cosmetic Chemists."

Two Join A-D-M

Two additions to the staff of the development department of Archer-Daniels-Midland Co., Minneapolis, Minn., were announced recently by Dr. George K. Nelson, department director. Edward B. Dunning, has been appointed to the industrial chemical development group, which is presently working on the evaluation of the derivatives of fatty alcohols, while Raymond E. Fiedler has been assigned as manager of agricultural products development.

Table II. (Cont'd) Compounds That Are Ineffective Against Aerobic Microorganisms in Emulsion Oils

Compound	Concentration ppm.	Reference	Compound	Concentration ppm.	Reference
Tetradecylamine-ortho-phenyl-phenate	1000	Bennett ²	Trichloroacetic acid	1000	Pivnick & Fabian ¹⁰
Tetramethyl thiuram disulfide	1000	Bennett ²	n-Trichloromethylthio tetrahydrophthalimide	1000	Bennett ²
2,2'-Thiobis (4-bromophenol)	1000	Wheeler & Bennett ¹¹	2,4,5-Trichlorophenate, sodium salt	1000	Wheeler & Bennett ¹¹
2,2'-Thiobis (4-chlorophenol)	1000	Wheeler & Bennett ¹¹	2,4,5-Trichlorophenol	1000	Bennett ²
2,2'-Thiobis (4,6-dichlorophenol)	1000	Wheeler & Bennett ¹¹	2,4,6-Trichlorophenol	1000	Pivnick & Fabian ¹⁰
2,2'-Thiobis (3,4,6-trichlorophenol)	1000	Bennett ²	2,6,8-Trimethylnonanone-4	1000	Bennett ²
Thiourea	1000	Pivnick & Fabian ¹⁰	Tris (hydroxymethyl) aminomethane	1000	Wheeler & Bennett ¹¹

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LEADERS IN AROMATIC CHEMICAL RESEARCH

Borax-Cut Shellac

(From Page 147)

borax and shellac were analyzed for borax according to the above procedure. Each series represented a shellac from a different supplier. Results of the analyses are shown in Table I.

These results indicate that the precision and accuracy of the method are better than that required to control the concentration of borax in the solution. The control laboratory has been able to determine borax in production samples with an estimated standard deviation of 0.6 percent (relative).

Recommended Procedure

- (1) Weigh approximately a 5-g. sample of borax-cut shellac into a 125-ml. separatory funnel. Add 50 ml. of butanol and 50 ml. of water.
- (2) Add a few drops of methyl red indicator and then add concentrated HCl drop by drop, with intermediate shaking, until a permanent red color is obtained. Add two drops of concentrated HCl in excess.
- (3) Shake the mixture, allow to stand, and drain the aqueous (bottom) layer into a 250 ml. titration flask.
- (4) Add 50 ml. of water to the separatory funnel containing the butanol layer, shake the mixture, allow to stand and combine the aqueous layer with that in step (3) by allowing it to drain into the titration flask. If the layers are slow to separate, add one or two drops of HCl, shake again and allow to separate.
- (5) Repeat step (4).
- (6) Add a few drops of methyl red indicator to the combined aqueous extracts, and add 0.1 N NaOH until the red color just disappears. Add one drop of 0.1 N HCl to cause the red color to reappear, and then add approximately 2 g. of mannitol and one ml. of phe-

nolphthalein, and titrate the solution to the phenolphthalein end point with 0.1 N sodium hydroxide.

Calculations:

$$\text{Borax, } \text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O},$$

percent =

$$\frac{\text{ml. of NaOH} \times \text{normality of NaOH}}{\text{Wt. of Sample, grams}} \times .09535 \times 100$$

Literature Cited

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—★—

CSC Names Seidel

Eugene M. Seidel has been appointed western manager for the market development department of Commercial Solvents Corp., New York, it was announced recently by Dr. F. E. Dolian, manager of the department, which is a unit of the petrochemicals division. Mr. Seidel, until recently midwest field representative, will make his headquarters in the company's district office in San Francisco. A graduate of the University of Indiana, Mr. Seidel served for five years in the chemistry department of that institution. He joined CSC in 1954. Mr. Seidel will be replaced by Marion E. Tislow, who will be located in Terre Haute, Ind. A graduate chemical engineer, Mr. Tislow has been associated with CSC since 1951. He most recently has served in the technical service section of the market development department.

New Patents

(From Page 81)

steam at elevated temperatures to recover chlorobenzene and sulfuric acid, and returning said chlorobenzene and sulfuric acid to the condensing step.

New Trade Marks

(From Page 111)

ders, lubricating detergents, drain cleaner solvents, and oil well cleaning agents. Filed Oct. 12, 1955 by

Kem-i-Kal Engineering Laboratories, Inc., Centralia, Ill. Claims use since 1938.

Nu-Pine — This for pine oil cleaner, disinfectant, deodorizer and bleach. Filed Mar. 13, 1955 by John C. Freeman, doing business as Freeman Products Co., Jackson, Miss. Claims use since June 10, 1955.

Aqua-Lo — This for liquid cleanser for skin and hair. Filed Apr. 4, 1956 by Schieffelin & Co., New York City. Claims use since Feb. 15, 1956.

Acclaim — This for chlorinated dishwashing compound. Filed Apr. 18, 1956 by Economics Laboratory, Inc., St. Paul, Minn. Claims use since June 30, 1955.

Sh-Boom — This for insecticides packaged in pressurized containers. Filed June 20, 1955 by Demert & Dougherty, Inc., Chicago. Claims use since on or about May 10, 1955.

Whisk — This for waterless hand cleaner in paste form having skin softening and protective properties. Filed July 19, 1954 by Metalife Co., doing business as C & S Products, St. Louis. Claims use since Dec. 15, 1946; as to "Whisk" Oct. 17, 1946.

Automatic — This for detergents, soaps, cleaners, and cleansers for washing machines, and general washing and cleaning purposes. Filed Aug. 29, 1955 by Fitzpatrick Brothers, Inc., Chicago. Claims use since Apr. 14, 1955.

Strip Aid — This for paint remover compositions. Filed Oct. 21, 1955 by Klem Chemicals Inc., Dearborn, Mich. Claims use since Feb. 17, 1949.

Wool-Kare — This for powdered and liquid soap. Filed Apr. 17, 1956 by David Traum Co., Inc., New York City. Claims use since Mar. 14, 1956.

Softasilk — This for liquid soap and powdered hand soap. Filed Mar. 26, 1956 by Gerson Stewart Corp., Cleveland. Claims use since in September 1915.

Leading Lady — This for liquid shampoo. Filed Mar. 26, 1956 by Fuller Brush Co., Hartford, Conn. Claims use since on or about Mar. 3, 1956.

Hoppe's — This for solvent for cleaning bores and preventing rust on firearms. Filed Mar. 13, 1956 by Frank A. Hoppe, Inc., Philadelphia. Claims use since 1923.

X-Tol — This for ingredient of a detergent preparation used in cleaning carpets, rugs, and upholstery. Filed Mar. 12, 1956 by Carolyn Co., Columbus, O. Claims use since October 1955.

Clean Family — This for soaps and soap powder. Filed Mar. 9, 1956 by Eugene M. Oberlin, doing business as E. M. O. Co., Chicago. Claims use since Feb. 4, 1956.

Turco — This for paint and varnish remover. Filed Mar. 2, 1956 by Turco Products, Inc., Los Angeles. Claims use since Aug. 29, 1955.

Sani-Flush — This for cleaning powder for water-closet bowls and automobile radiators. Filed May 26, 1955 by Hygienic Products Co., Canton, O. to Boyle-Midway, Inc., New York City. Claims use since June 10, 1954.

Zerospot — This for detergent sanitizer. Filed Feb. 24, 1955 by Diversey Corp., Chicago. Claims use since Feb. 12, 1955.

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News

CSMA Award to Reddish

Dr. George F. Reddish, professor of microbiology and public health at St. Louis College of



Dr. George F. Reddish

Pharmacy and Allied Sciences, has been selected to receive the 1956 Achievement Award of the Chemical Specialties Manufacturers Association, New York, for technical contributions in the fields of public health, disinfection, and antisepsis, it was announced recently. The presentation will be made at a luncheon, to be held Dec. 4 in Washington, D.C., during CSMA's 43rd annual meeting.

Dr. Reddish, who is the author of almost 100 technical papers in the field of bacteriology and antisepsis, recently was appointed research consultant for James Varley & Sons, St. Louis. For the past 25 years he had served as director of bacteriological research of Lambert Pharmacal Co., St. Louis, a division of Warner-Lambert Pharmaceutical Co., Morris Plains, N. J. Prior to that, he was associated with Hynson, Westcott & Dunning, Inc., Baltimore, where he headed the bacteriology department, and the U.S. Department of Agriculture and the U.S. Food and Drug Administration, where he served in research capacities.

In 1954, Dr. Reddish edited "Antiseptics, Disinfectants, Fungi-

cides, and Chemical and Physical Sterilization," a book that provided the first comprehensive compilation of technical data to be published in the disinfectant field.

Hollingshead Income Up

R. M. Hollingshead Corp., Camden, N. J., recently reported a slight drop in sales and sharp increase in net income and earnings for the first nine months of 1956. Net sales dropped to \$11,351,000, in the nine months ended with September from \$12,082,000, in the corresponding period in 1955. Net income for the first nine months increased to \$161,797, equal to share earnings of \$1.20, compared with \$54,986 and 41 cents, in a similar period a year ago.

C. A. Golding Retires

C. A. Golding of Peck Products Co., St. Louis, has retired after 23 years in the wholesale sales field, it was announced last month by Leo G. Peck, president. Mr. Golding, who represented Peck's line of chemicals throughout the western portion of the U.S., plans to spend his retirement in Eustis, Fla.

A 1908 graduate of Beloit College, with a B.S. in chemistry, Mr. Golding was co-founder of Gateway Chemical Co., Kansas City, Mo., sanitary supply jobbing firm.

C. A. Golding Retires



He had also served as supervisor of chemists with Monsanto Chemical Co., St. Louis.

Johnson Ups Pearce

S. C. Johnson & Son, Inc., Racine, Wisc., recently announced the appointment of Dr. John W.



Dr. John W. Pearce

Pearce as director of applied research. He previously had been supervisor of the firm's organic research section.

A graduate of Michigan State University, Dr. Pearce joined Johnson in 1953 as a senior chemist. He formerly was associated with La-Paco Chemicals Co., and Renaud Plastics, Inc., both of Lansing, Mich., and also served as a chemistry instructor at Lawrence Institute of Technology.

CSMA Proceedings

A review of proceedings of the 42nd mid-year meeting of the Chemical Specialties Manufacturers Association, held May 20-21 in Chicago, has been compiled and published in a 178-page, paper bound volume by the CSMA, 50 East 41st St., New York 17. Included in the contents of the eight and one-half by 11-inch book are all reports, papers, and discussions at general sessions and divisional meetings. Also listed are current CSMA officers, board of governors, committee members, and the general association membership. Copies are available from the CSMA for \$7.50.

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Stalfort Expands Aerosol Filling Plant

JOHN C. Stalfort & Sons, Inc., Baltimore, custom aerosol loader, recently announced the expansion of facilities at its Pressure-Pak Division plant, increasing the total area to over 70,000 square feet. The additional facilities will greatly increase the firm's efficiency and output, according to Charles Beach, general manager.

Included in the expansion are three new high-speed filling lines with a capacity of over 300 cans per minute. These lines operate almost continuously with only minor delays for necessary maintenance and control checks. In addition the design of the building is such that one or two filling lines may be easily added without interrupting the constant, continuous flow of concentrate, propellant, and cans to one end of the lines, or the steady flow of filled containers in shipping cartons from the other end.

Another feature of the expansion is a 2,000 square foot aerosol research and development laboratory. According to Mr. Beach, the increased laboratory space is important not only to maintain quality control, but for use in developing new products. Stalfort's service to its customers includes not only the filling of the containers but also the development and testing of formulas, the designing of the label, and the shipping of the product to the customer's dealer.

At the same time, it was announced that Mr. Beach and Richard Krause, sales manager, will at-

tend the 1956 meeting of the Chemical Specialties Manufacturers Association, to be held in Washington, D.C., Dec. 3-5, for the purpose of issuing invitations to CSMA members to view the Pressure-Pak plant in operation.

Stalfort will furnish transportation to the plant and back, while technicians will be on hand at the plant to demonstrate and explain, the filling lines, multi-stage chillers and dryers, refrigerated mixing tank, and other refrigerated phases of a modern aerosol custom loading plant.

— ★ —

"Freon" Price Cut

E. I. du Pont de Nemours, Inc., Wilmington, Del., has reduced the prices of its aerosol propellants, "Freon-12" and "Freon-11," 1.2 and seven percent, respectively, effective Nov. 1. The reduction brings the price of "Freon-12" to 25.3 cents per pound in tank-car or tank-truck quantities. "Freon-11" will sell for 20 cents per pound in tank-car and tank-truck quantities and 21 cents per pound when ordered in ton tanks.

— ★ —

Model Labeling Law

The board of trustees of the American Medical Association, Chicago, recently authorized the AMA committee on toxicology to draft a recommended model law on labeling of many possibly harmful chemicals not now regulated.

The proposed law would serve as a guide for writing regula-

New addition to custom aerosol filling facilities of John C. Stalfort & Sons, Inc., Baltimore, which provides an additional 70,000 square feet. Unit will house filling lines and research and development laboratory.



tions which would require labels to state the product's contents, its possible dangers, directions for safe use, and first aid instructions.

According to Dr. Torald Sollmann, Cleveland committee chairman, the law would be an "enabling act" under which later regulations could provide for its enforcement. The AMA committee plans to discuss the problem with other organizations including the American Pharmaceutical Association and the American Public Health Association.

A model labeling bill is being prepared by the Chemical Specialties Manufacturers Association. The bill, which is nearly completed, is being drafted by the Precautionary Labeling Committee of CSMA.

— ★ —

Science Remodels Plant

Science Industries, St. Louis, Mo., has remodeled its St. Louis plant with new equipment that will double the firm's production capacity, it was announced recently by Erwin O. Chase, general manager.

The new facilities include stainless steel soap making equipment, automatic drum filling equipment, new mechanized conveyors, a one-gallon jug filling line, and heat exchangers.

The company manufactures soaps, detergents, floor waxes and cleaners and disinfectants for resale by jobbers only.

— ★ —

Lehn & Fink Advances Manz

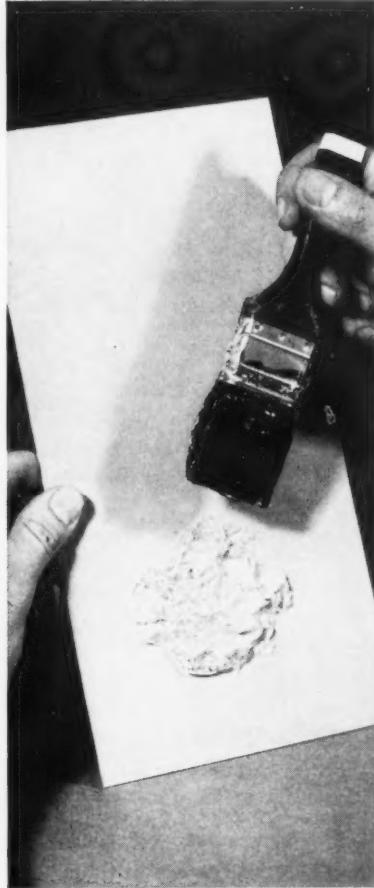
Charles Manz has been named manager of the central sales region of the Lehn & Fink Division of Lehn & Fink Products Corp., New York, it was announced recently by O. G. Kennedy, general manager. The division supervises marketing of the firm's "Lysol" brand disinfectant, and "Etiquet" deodorants.

Mr. Manz joined Lehn & Fink in September, 1955, as a products salesman, servicing Florida and California. He previously had been sales representative for Underwood Corp., New York.

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New Mojonnier Aerosol Premix Unit

A NEW piece of pressure packaging equipment for the pre-mixing of product and propellant was introduced last month by Mojonnier Associates, Inc., Franklin Park, Ill. The "Synchromatic" combiner performs this task at room temperature and under pressure, prior to refrigeration. The mixed product is then refrigerated in the combined state and filled in a single filler.

The combiner set-up consists of two air-operated pumps, one for product, and one for propellant; two weight-loaded accumulators, for product and for propellant, respectively. These accumulators feed to measuring cylinders of adjustable capacity which meter product and propellant into a mixing chamber. Connected to the mixing chamber is a weighted accumulator for combined product and propellant. The unit includes a number of intermittent actions, is air operated, and electrically controlled.

Product and propellant are pumped into their respective accumulators and successive discharges of metered proportions of product and propellant are mixed together and forced into the mix accumulator causing the weight on this accumulator to rise. When the accumulator weight rises to about one-third, a safety switch is released and the cold-filler begins to operate automatically. A pilot light goes on and the operator opens the outlet shut-off valve allowing the mix to travel from the combiner to the refrigerating unit and thence to the filler. Once the filler has started, the entire operation becomes automatic. The operator can turn off the filler, but he cannot put it into operation unless the mix accumulator contains a sufficient amount of the product/propellant combination. The filler stops and a warning light on the combiner shows when mix is not available to the filler.

The Mojonnier "Synchromatic" pre-mix system is available in a wide range of sizes and in each size the proportion of product to

propellant is adjustable over an infinite range. The following advantages are claimed for the system: Mixing of product and propellant in a measuring cylinder makes for accuracy and uniformity. When product and propellant are filled into a can separately the respective fillers may fill one can on the high side of tolerance with the product and the next can on the high side with the propellant, making for non-uniformity in the final product. Pre-mixing enables the packager to make full use of his refrigeration capacity and eliminates the use of pressure tanks, weight scales, etc. The element of human error is reduced by increased automation.

The pre-mix system should not be used with products which do not combine or which precipitate out of solution during refrigeration, Mojonnier warns. A flow sheet and detailed information are available from the firm at 9151 Fullerton Avenue, Franklin Park, Ill.

Johnson Advances Pavilonis

S. C. Johnson & Son, Inc., Racine, Wisc., recently announced the advancement of Edward J. Pavilonis to the position of chief experimental engineer. Mr. Pavilonis joined Johnson in 1947 as a chemist in the research and development department. Prior to his recent appointment he was a senior industrial engineer in the production division. A graduate of the

Edward J. Pavilonis



Case School of Applied Science, Mr. Pavilonis was formerly associated with Hercules Powder Co., Wilmington, Del.

Newman-Green Catalog

A new catalog, listing, describing, and giving information of its line of aerosol valves, including prices, has been issued by Newman-Green, Inc., 151 Interstate Road, Addison, Ill., it was announced recently. In addition, the nine-page catalog gives full information on the products used. Copies can be obtained on request from the company.

Building Maintenance Guide

An 80-page paper bound volume entitled "Office Building Sanitation," has been published by the Nationwide Insurance Co., Columbus, O., it was announced recently. A guide for the sanitary maintenance of office buildings, the publication is divided into four sections. Parts one and two include the organization and administration of a sanitation program while parts three and four deal with standard cleaning methods and necessary supplies used in the maintenance in all types of office buildings. Copies can be obtained from the company, 246 North High St., Columbus 16, O.

Article on F.M.C.

A fully-illustrated eight-page reprint of a paper entitled, "The Chemical Divisions of Food Machinery and Chemical Corporation," by A. T. Loeffler, vice-president of FMC, has been made available by the company, it was announced recently. The article was originally published in the September-October issue of the *Armed Forces Chemical Journal*.

The paper reviews the growth and development of FMC since its formation in 1929. Also discussed are the functions and operations of the firm's six chemical divisions and chemical research center. Copies are available on request from the company, 161 East 42nd St., New York 17, N.Y.

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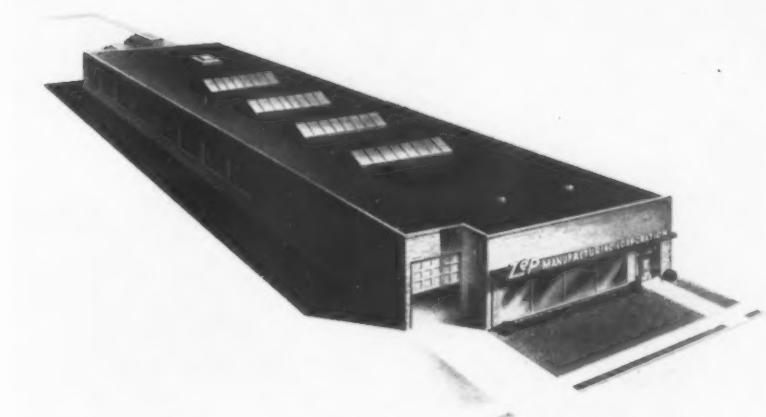
Lehn & Fink Adds TV Show

Lehn & Fink Products Corp., New York, has added another television program, NBC's "It Could Be You," an audience participation show, to its lineup for the current advertising campaign for "Lysol" disinfectant, it was announced recently. The addition, now gives the firm two network shows. It also sponsors "Queen For A Day," on which to stress the product's household cleansing properties. Lehn & Fink is sponsor of the segments which appear at 12:45 P.M. EDT, Tuesdays, starting Oct. 2. About eighty stations, covering an estimated 86 percent of the television public, will carry the show.

Reformulates Dry Bleach

A new formulation of "Ad-Dri," a dry chlorine bleach for commercial laundries is being offered by the industrial chemicals division of Olin Mathieson Chemical Corp., Baltimore, it was announced recently. The original "Ad-Dri" was introduced in 1951 as the first dry chlorine bleach for commercial laundries.

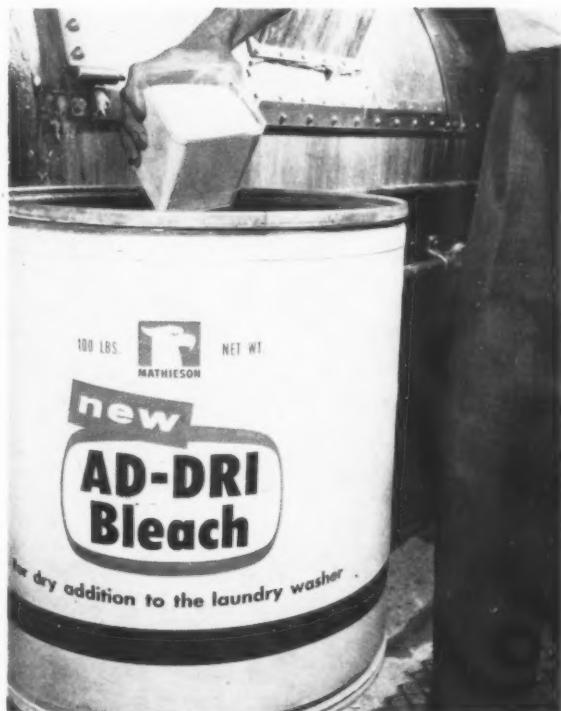
The new formulation, a hypochlorite product designed for



New Cleveland, O., branch of Zep Manufacturing Corp., Atlanta manufacturer and distributor of sanitary supplies, which opened Oct. 1. New plant, at 13112 Broadway, provides warehousing and packaging space, as well as divisional sales offices. H. William Swann is branch manager in Cleveland.

laundry plant bleaching, is said to be stable, free flowing and fast dissolving. Its major feature is that it can be added dry to the bleach suds operation.

The material is shipped in 100-pound, lever-opening fiberboard drums. Each drum contains a clear polystyrene measuring cup which is calibrated in pounds of dry wash weight to permit measurement of the right amount of bleach for the wash load. "Ad-Dri" is not being offered for household use.



New formulation for "Ad-Dri," dry chlorine bleach of Olin Mathieson Chemical Corp., Baltimore. Material is shipped in 100-pound, lever-opening fibre drums. Each drum contains clear polystyrene measuring cup.

Two CSC Appointments

Elzie Wolker and Quentin R. Jeffries have been appointed to the engineering research staff of Commercial Solvents Corp., New York, it was announced recently by M. C. Wheeler, vice-president. Both men will headquartered at the firm's research and production center, Terre Haute, Ind. Prior to joining CSC Mr. Wolker served as a research engineer with Rohm & Haas Co., Philadelphia.

Mr. Jeffries is returning to Commercial Solvents after spending three years with Battelle Memorial Institute as principal engineer. He was formerly supervisor of the company's Terre Haute penicillin plant.

Campbell in New Post

Kenneth J. Campbell has been advanced to the newly-established post of administrator of general services of the Dyestuff and Chemical Division of General Aniline & Film Corp., New York, it was announced recently by S. H. Williams, vice-president and assistant general manager. In his new position, Mr. Campbell directs the activities of the credit, traffic, advertising, pricing and sample departments.

With General Aniline since 1942 he served as administrative assistant to the vice-president and general sales manager since 1955.

...about chemical specialties



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by Leonard Schwarcz

A COMPLETELY revised 576-page book which includes: bacteria and disease, principles of disinfection, disinfectants (6 chapters), deodorants, man versus insects, household and industrial insecticides (9 chapters), rodenticides, floor waxes and floor care, sweeping compounds, potash soaps, detergents and cleansers (4 chapters), labeling and packaging, laws and regulations explained.

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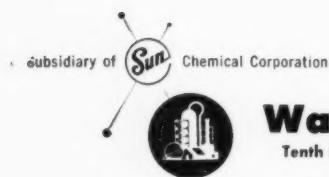
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Minimum Fills Listed

A list of minimum fills recommended for aerosol packages of insecticides, room deodorants, and artificial snow has been brought up to date and issued recently by the Chemical Specialties Manufacturers Association. The revised list was adopted by the administrative committee of CSMA's Aerosol Division at its September meeting in Osterville, Mass.

The following size packages are recommended for use with pressurized insecticides, room deodorants, and artificial snow having no greater than 20 percent non-volatile materials in the formulation, to contain label contents not under 12 ounces (avoirdupois).

1. American Can size 211 (2-11/16") diameter by 113 (4-13/16") body height.
2. Continental Can Company dome style can, size 211 (2-11/16") diameter by 413 (4-13/16") body height.
3. Continental Can concave style, size 211 (2-11/16") diameter by 413 (4-13/16") body height.
4. Crown Can size 214 (27/8") diameter by 411 (4-11/16") body height.

For products in this group with label contents not under six ounces (avoirdupois) the following sizes are recommended:

1. American Can dome or flat top style, size 202 (21/8") diameter by 314 (37/8") body height.
2. American Can size 202 (21/8") diameter by 406 (4-6/16") body height.
3. Crown Can squat style, size 214 (27/8") diameter by 212 (23/4") body height.
4. Crown Can tall style, size 202 (21/8") diameter by 411 (4-11/16") body height.
5. Continental Can dome style, size 202 (21/8") diameter by 314 (37/8") body height.
6. Continental Can concave style, size 202 (21/8") diameter by 314 (37/8") body height.
7. Continental Can size 202 (21/8") diameter by 406 (4-6/16") body height.

The following cans to contain a label contents, not under specified weight :

1. American Can size 202 (21/8") diameter by 214 (2-11/16") body height. Not under 3 ounces (avoirdupois).
2. Continental Can size 202 (21/8") diameter by 214 (2-11/16") body height. Not under 3 ounces (avoirdupois).
3. Continental Can 211 (2-11/16") diameter by 510 (5-10/16") body height. Not under 11 ounces (avoirdupois).
4. American Can 211 (2-11/16") diameter by 604 (61/4") body height. Not under 16 ounces (avoirdupois).
5. Continental Can 211 (2-11/16") diameter by 604 (61/4") body height. Not under 16 ounces (avoirdupois).

Choose the Right Size of PARADI®

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SIZE AND DESCRIPTION:	COMMENTS:	CHECK HERE FOR:		
		Free 1-lb. sample	50-lb. trial drum (purchase)	Further information
PEA No. 1 Repackage these big sparkling PARADI crystals just as they come from the drum.				
PEA No. 2 A popular size for re-packaging in vaporizer cans.				
RICE No. 1 Smallest crystals recommended for direct repackaging. Excellent for shaker-top cans.				
RICE No. 2 Exceptionally free-flowing, easy packing, for fast refilling of power presses.				
RICE No. 3 For foot-operated presses you need a finer crystal like this—free-flowing but small enough to pack and compress easily.				
POWDERED Save time in melting and molding with this super-fine fast-melting size.				

SEE FOR YOURSELF the extra sales appeal you can get with dry, sparkling PARADI. The brilliant, snowy crystals sublime completely—without stain or residue. They make firm, clean blocks and pellets of exceptional whiteness. You can get them in fiber drums—25, 50, 100 or 200 lbs. net.

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6-1875

Gersthofen Waxes to be Renamed in '57

"GERSTHOFEN WAXES" will be more plentiful and once more change their name in 1957, it was announced recently by Farbenwerke Hoechst, A. G., Frankfurt am Main, Germany. Known formerly as "I.G. Waxes," this series of upgraded montan wax derivatives became "Gersthofen Waxes" when an allied fiat dissolved the I. G. Farben trust at the end of World War II. Beginning in 1957 they will be mar-

keted as "Hoechst Waxes."

Hoechst has acquired brown coal mines in Treysa near Kassel, Western Germany, and is erecting a plant for the production of crude montan wax from the brown coal or lignite. The Treysa facilities are scheduled to go on stream in the spring of 1957. Processing facilities in Gersthofen have undergone considerable expansion in step with the impending increase in the flow of

raw material, crude montan wax.

Until now Gersthofen's raw material came exclusively from behind the Iron Curtain. A. Riebeck-sche Montanwerke, A. G., Halle, Eastern Germany, makes crude Montan wax derived from East German brown coal. Much of this wax is shipped to Gersthofen from the Russian zone for further upgrading and to produce certain ester waxes. Under a reciprocal trade agreement, Gersthofen returns a specified proportion of esterified or refined waxes. This arrangement worked efficiently until late in 1955, when Gersthofen found itself short of raw material and had to curtail its deliveries to European consumers, although it was able to maintain its quota in the United States. Various factors contributed to the deterioration of supplies from Halle: Riebeck installations are suffering from age and overwork which reduce output and lead to production difficulties. Replacements are not easy to come by under a communist regime. Larger shipments of crude are being shipped to Russia, China, and other Iron Curtain countries, leaving less for shipment to Gersthofen and the Western world.

The Gersthofen series covers a wide range of physical and chemical characteristics: melting points from 106° to 50°C, colors from snow white to dark brown, and a wide variety of hardness degrees. Uses and applications in the specialties field are accordingly varied and specialized, covering paste polishes for floors, shoes, and autos; liquid polishes, solvent based, water emulsion, or mixed base. Some of the waxes can be blended with carnauba or replace it in certain formulations, others replace bees wax in cosmetics, others are designed for use in carbon paper manufacture or as a hardening agent for softer waxes.

Gersthofen waxes in the United States are handled exclusively by Wax & Rosin Products, 42 Broadway, New York, which has published a number of data sheets describing in detail the use of char-

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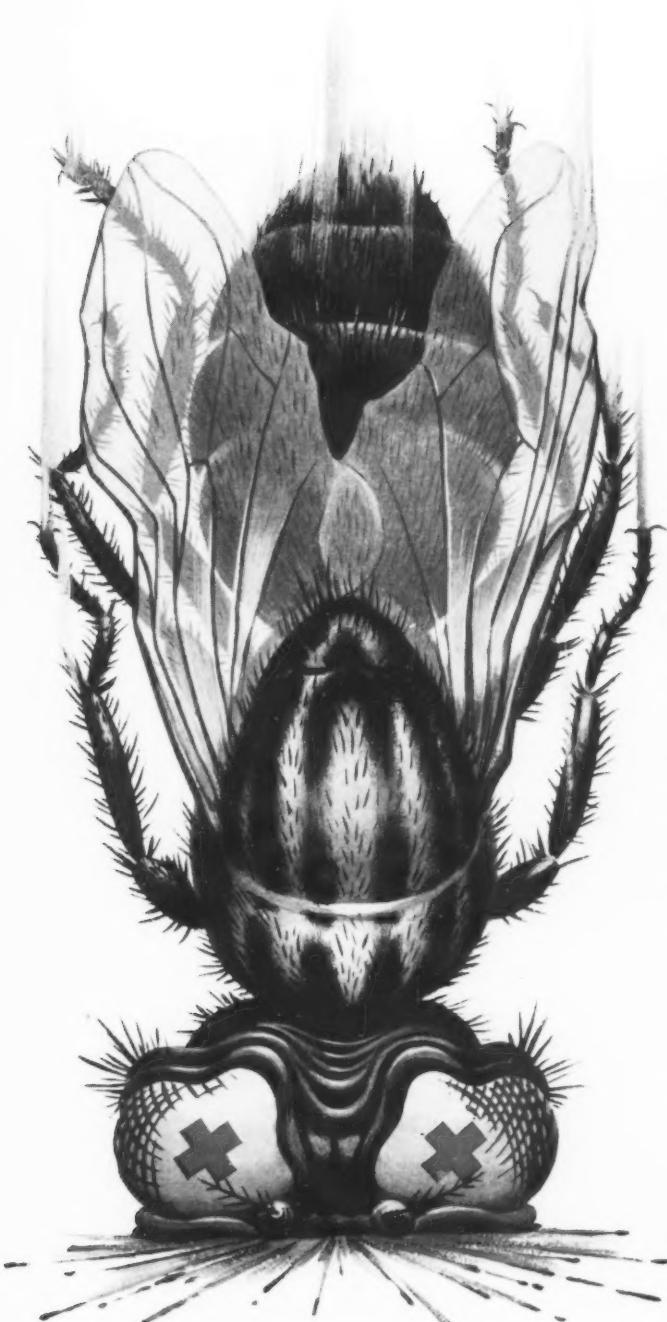
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acteristics outlined above.

Output of "Gersthofen Waxes" is estimated at about 800,000 pounds a year. Wax & Rosin Products reports a 100 percent increase in sales in the United States. With the source of raw materials assured the outlook for these products should be bright.

Glycerine Thickener

(From Page 45)

of the "solution" is calculated for any range of shear by taking the slope of the curve in the shear rate range desired. The yield value is calculated from the shearing stress axis intercept.

A suggested interpretation of these curves employs the use of only the down curve to determine the yield value and viscosity and the noted deviation between the up and down curves, to indicate degree of thixotropy.

Rheology of Carbopol in Water: 1. Pseudoplastic with very high yield value; 2. slight thixotropy as seen by the slight deviation of the "up" and "down" curves; 3. characterized by a very high ratio of yield value to viscosity; 4. Appearance-touch: a) has little body when rubbed on hand; b) very smooth, glossy, very slightly cloudy; c) "Short." An object dipped in a non-pourable mucilage will remove only a small amount of mucilage when pulled out.

Rheology of Carbopol in Glycerine: The flow curve shows a general similarity with the anomalous flow of Carbopol in water with, however, important differences: 1. pseudoplastic with high yield value; 2. decidedly more thixotropic than Carbopol in water as seen by the considerable difference between "up" and "down" curves; 3. characterized by a much lower

ratio of yield value to viscosity than Carbopol in water; 4. Appearance-touch: a) has a very high degree of body and lubricity when rubbed on the hand; b) very smooth, glossy, crystal clear; c) "Medium Length." An object dipped in a non-pourable Carbopol-glycerine solution will pull a string of solution up with it when pulled out.

Toxicity: "Carbopol 934" is inert both from the standpoint of acute toxicity and dermatology. It is neither a primary irritant nor a sensitizer. All toxicity experience to date has been favorable.

Due to the non-toxic nature of glycerine, the combination of glycerine and "Carbopol 934" should be ideally suited to the fields of cosmetics and pharmaceuticals.

Aging Characteristics: "Carbopol 934" differs from the majority of water sensitive natural gums and polymers now employed as thickeners in that it is not subject to chemical hydrolysis or polymer degradation due to organismal attack upon aging. The viscosity of "Carbopol 934" mucilages has been relatively unaffected by aging for a year's time; whereas, the viscosity of mucilages of gum tragacanth, sodium alginate, and even carboxy methyl cellulose has been found to be nearly completely destroyed by a fourteen week aging test conducted in our laboratory.

The viscosity of a one percent solution of Carbopol in glycerine has been completely unaffected by aging for a sixteen week period illustrating the resistance to chemical breakdown of "Carbopol 934" in glycerine.

Neutralization With Various Bases: Although sodium hydroxide is an efficient and economical base for use in "Carbopol 934" neutralization, there may be instances

Table 1. Neutralization Data
One percent "Carbopol 934" dispersed in tech. glycerine**

Neutralized With	Grams Added Per Gram Carbopol 934	pH	Brookfield (20 r.p.m.) Viscosity
Sodium hydroxide (50% sol.).....	0.80	7	114,000 cp.
Ammonium hydroxide (57.6% NH ₄ OH)	0.73	7	118,600 cp.
Triethanolamine (100%)	1.35	7	126,000 cp.

** Specific Gravity 1.259 (99 percent glycerol). Similar results obtained in U.S.P. Glycerine.

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where another neutralizing agent would be desired (e.g., where sodium ions are to be avoided). Table #1 shows the close values in viscosity produced by using various neutralizing agents to bring a one percent acid solution of "Carbopol 934" in glycerine to a pH of 7. The amounts of the different bases required are indicated. Further neutralization data is available.*

(To be concluded)

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Toilet Bowl Cleaners

(From Page 131)

test results are continuously significantly the same for series of tests under the same controlled factors.

To arrive at a good average and sufficient number of individual values, we used eight values or the results of at least four test series which gives four duplicates.

Fisher states that if the difference between two mean values is equal to or greater than twice the larger standard error, the chances

* Carbopol 934 Service Bulletin GC-20, B. F. Goodrich Chemical Co., Cleveland, Ohio.

are 95 out of 100 the differences are real.

Table II gives the iron stain removal test values of several products. The "I. R." column symbolizes "iron stain removal," and the values are obtained by using the formula given under calculations.

The "C. I. R." column gives comparative iron stain removal which is calculated by placing the primary standard I. R. value at 100 percent, then the other values in the series are calculated in relation to 100 percent. "The 2 x Std. error" column gives the deviations from the mean value as explained under statistical analysis.

Discussion of Results

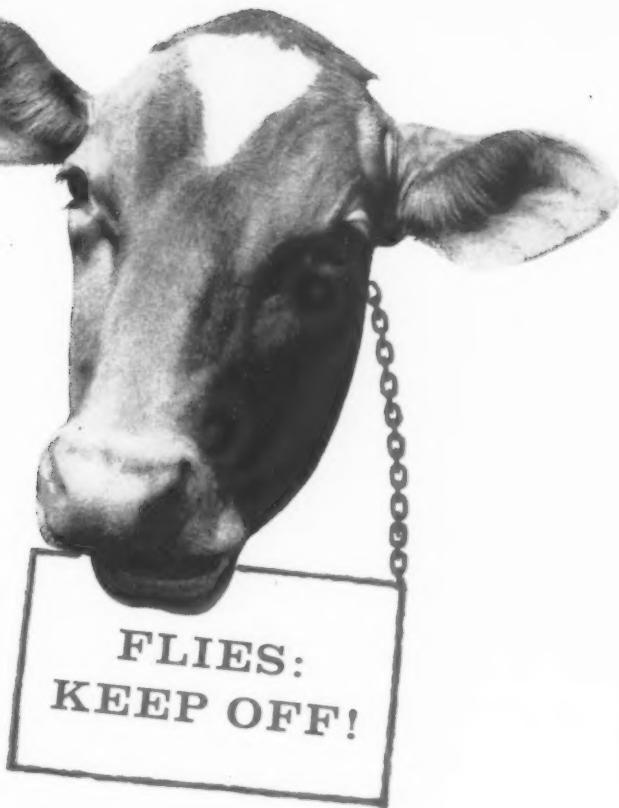
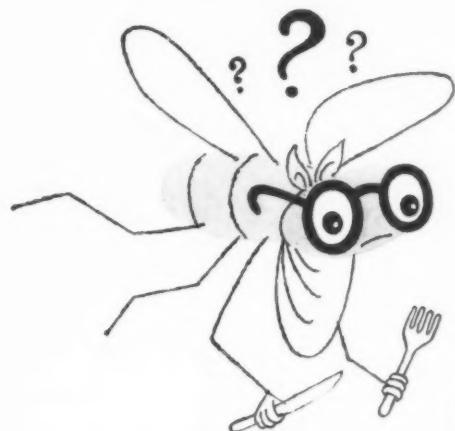
OUR evaluation method was designed to give values within a range that is sufficiently wide spread to evaluate nearly all practical cleaner compositions. The quantity of iron stain on the test plates and the adherence of the stain to the plates is such that the best cleaner compositions will not completely remove all the iron stain, and at the same time be sensitive enough to rationalize by analysis the values that fall between "no removal" and "100 percent removal." The controllable factors like concentration, temperature, water hardness can be changed to meet the desired requirements of a set or series of evaluations.

In Table II under the product column are listed several compositions which are examples of the molecular structure behavior toward iron stain removal which was mentioned before. Notice the combinations that have both complexing and low pH values, then compare compositions with low pH values only and no complexing structure. The difference in comparative iron stain removal is significant by statistical analysis.

By the progressive reflectance and average selection of the test plates to be used, the variations of iron stain distribution and adherence to the test plates are reduced

(Turn to Page 185)

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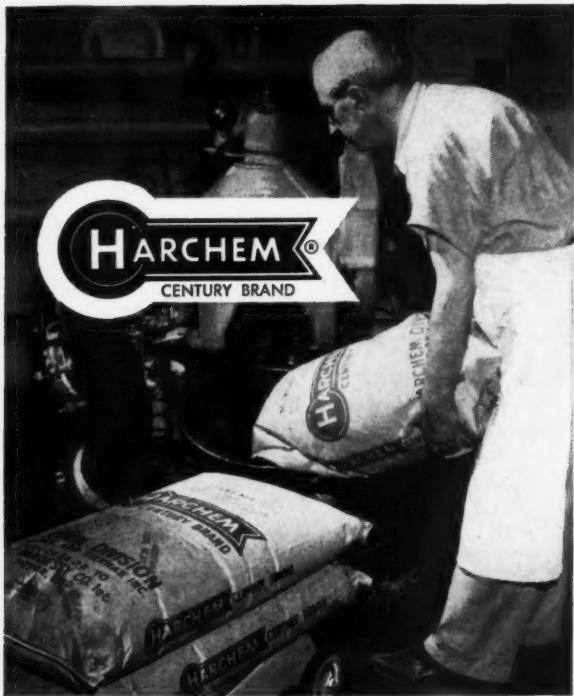
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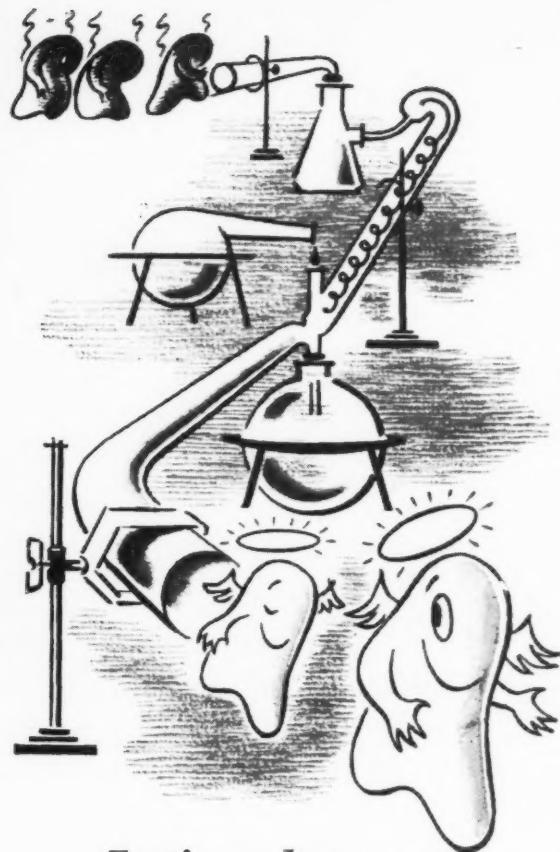
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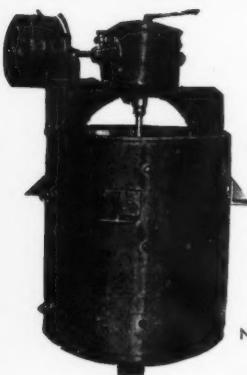
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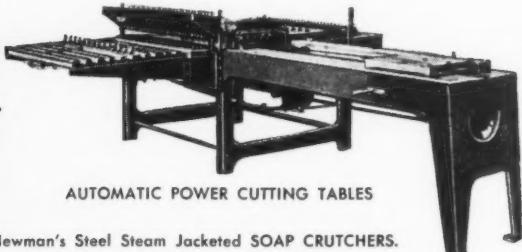
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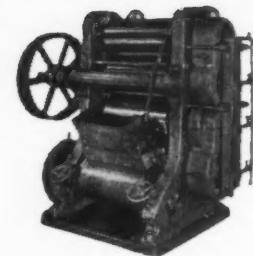


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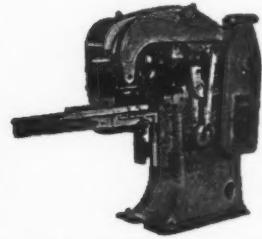


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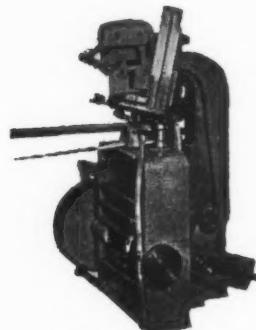
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(Continued on Page 183)

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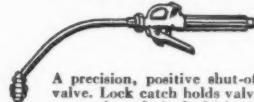
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1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Mac Nair-Dorland Co., Inc., 254 West 31st St., New York 1, N. Y.; Editor, Frank J. Reilly, 254 West 31st St., New York 1, N. Y.; Business Manager, Ira P. MacNair, 254 West 31st St., New York 1, N. Y.

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5. The average number of copies of each issue of this publication sold or distributed through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

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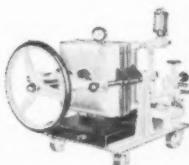
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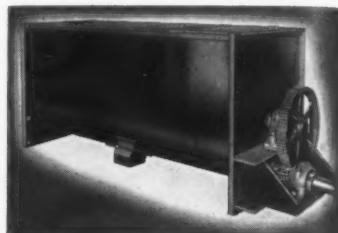
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(Continued from Page 174)
to a minimum.

Conclusion

1. The evaluation test method is reliable and reproducible within the limits set by the statistics used.
2. The useful range of the test method will evaluate practically all toilet bowl cleansers in respect to iron stain removal.
3. The main disadvantage of the test method is the difficulty in obtaining uniform distribution and adherence of iron stain in the test plates.
4. In view of the growing demand for better toilet bowl cleaners, evaluation of prospective compositions is mandatory.

Bibliography

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3. R. A. Fisher—*Statistical Methods for Research Workers*, 11th Edition—page 111—1950.
4. A.S.T.M. Manual on Presentation of Data.

NSSA Coast Trade Show

Calvin D. Johnson, public relations director of Remington Rand Division of Sperry Rand Corp., Washington D.C., will be one of the principal speakers at the first west coast trade show and regional conference of the National Sanitary Supply Association, it was announced recently by Leo J. Kelly, executive vice-president of the NSSA. The trade show and meeting will be held Nov. 25-27, at the Ambassador Hotel, Los Angeles.

Mr. Johnson is a noted speaker and in the past has addressed hundreds of business, civic and fraternal organizations. He formerly served as a member of the House of Representatives after his election to Congress in 1942.

More than 100 firms, many of them in the soap, chemical specialties, or allied industries, plan to exhibit at the show, which will be held again in 1957 on the west coast, according to Mr. Kelly. In addition to the displays and concurrent conferences, the three-day

session will include the quarterly meeting of the NSSA board of directors.

Included among those firms which are planning to exhibit the products and equipment are:

American Dispenser Co., New York; B. T. Babbitt, Inc., New York; Bobrick Dispensers, Inc., Los Angeles; E. L. Bruce, Memphis, Tenn.; Candy & Co., Chicago; Camp Chemical Co., Brooklyn; Chemical Service of Baltimore, Baltimore; Colgate-Palmolive Co., New York; Federal Varnish Division, Chicago; Fuld Brothers, Inc., Baltimore; Golden Star Polish Mfg. Co., Kansas City, Mo.; R. M. Hollingshead Corp., Camden, N.J.; Klix Chemical Co., San Francisco; Liquisan, Inc., Chicago; MacCart Co., Cleveland; Magee Chemical Co., Bensenville, Ill.; Frank Miller & Sons, Chicago; Moore Brothers Co., New York; Multi-Clean Products, Inc., St. Paul, Minn.; Platt & Smillie Chemicals, St. Louis; Peck's Products Co., St. Louis; Puro Co., St. Louis; Rapids Machinery Co., Marion, Ia.

—★—

Cook Heads APCA

The Alabama Pest Control Association, Montgomery, Ala., recently announced the election of John R. Cook as president. Mr. Cook is general manager of both Cook Pest Control Co., Huntsville, Ala., and North Alabama Termite Co., Decatur, Ala.

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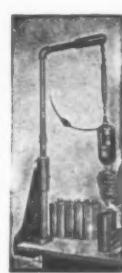
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Coming Meetings

American Public Health Association, 84th annual meeting, Convention Hall, Atlantic City, Nov. 12-16.

American Society for Testing Materials, Committee D-21 on Wax Polishes and Related Materials, Washington, D. C., Dec. 10.

Association of American Soap & Glycerine Producers, 30th annual meeting, Waldorf-Astoria Hotel, New York, Jan. 23-25.

Chemical Specialties Manufacturers Association, 43rd annual meeting, Mayflower Hotel, Washington, D. C., Dec. 3-5; 43rd midyear meeting, Drake Hotel, Chicago, May 21-22, 1957.

CIBS, annual Christmas Dance, Plaza Hotel, New York, Dec. 8.

Drug, Chemical and Allied Trades Section, New York Board of Trade, 67th annual meeting, Galen Hall, Wernersville, Pa., Sept. 19-21, 1957.

Entomological Society of America, annual meeting, Dec. 27-31, 1956, Hotel New Yorker, New York City.

National Association of Retail Grocers, Los Angeles, June 10-14, 1957.

National Chemical Exposition, Public Auditorium, Cleveland, Nov. 27-30.

National Hotel Exposition, 41st annual show, Coliseum, New York City, Nov. 12-16.

National Packaging Exposition and Conference, International Amphitheatre, Chicago, April 8-11, 1957.

National Sanitary Supply Association, first western regional trade show and convention, Ambassador Hotel, Los Angeles, Nov. 25-27; national trade show and convention, Conrad Hilton Hotel, Chicago, March 31, Apr. 1-3 1957.

Eighth Plant Maintenance Show & Conference, Public Auditorium, Cleveland, Jan. 28-31, 1957.

Society of Cosmetic Chemists, 11th annual meeting, Commodore Hotel, New York, Dec. 13.

Synthetic Organic Chemical Manufacturers Association, annual meeting and dinner, Biltmore Hotel, New York, Dec. 3.

Toilet Goods Association, 24th meeting of Scientific Section, Waldorf-Astoria Hotel, New York, Dec. 12.

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Tale Ends

NOW, we've seen everything! Wrapped para blocks resting on top of empty drip machines. And this in the lavatory of one of the country's best hosteries. Apparently, the idea is to scare away any odors, fleeting or otherwise. Maybe the bloke who told us about janitors using para blocks without removing the wrapper—and then complaining that they had no deodorizing effect—was not far off base as it might seem.

Jack Mohr, president of Lenthalic, which was sold last month to Helene Curtis Industries, Inc., used to open sales meetings by stating: "Just to reassure you salesmen, yes, Lenthalic is for sale . . . on every drug and department store counter in the U. S."

The first aerosol joke is out, good friends! It's about Pierre and Celeste, a French Canadian and his wife. It was first told by Joe Tomlinson of General Chemical. We cannot repeat it here for lack of space and also for other reasons—mostly other reasons. So, if you're curious, get the details from Joe.

Just about now the board of CSMA is recovering from the shock of it all! The sedate and very conservative secretary of CSMA, one H. W. Hamilton, appeared at the last board meeting adorned in a new sport coat—and what a sport coat! This one really talks right out loud in meeting—real loud. Adorning the person of an old conservative, it shocked some members of the board. We hope the Honorable Secretary doesn't read this and decide to burn it, or something.

The shaving mug must go, insists the State (N.J.) Assn. of Journeymen Barbers & Proprietors International Union, AFL. (Wow, what a mouthful that one is) at a recent meeting in Plainfield, N. J. After working themselves into a lather over sanitary conditions in tonsorial establishments, formerly known as barbershops, they passed a resolution urging the state legislature to outlaw the shaving mug and brush. "The shaving mug and brush is not sanitary,"—this was the coup de grace of the association's president.

The ranks of the grandfathers in the chemical specialties and allied industries are growing. Latest to join the group is C. K. Wellenkamp of Verona Chemical Co., Newark, N. J. His son, Charles F. Wellenkamp, chief chemist in charge of the laboratory and plant of Frank G. Fanning Co., Newark, N. J., became a poppon on Oct. 13. The latest member of the clan is Miss Kathleen Joyce Wellenkamp.

Them what has gits.... A note from the world-traveller, author and bon vivant, E. G. (Doc) Thomassen tells us that his old buddy, Dr. Eric Kunz, formerly of Givaudan and now a retired gentleman

farmer in Fletcher, N. C. is "quite excited." The reason, according to Doc Thomassen, is that Dr. Kunz had just won a 1956 Cadillac in a supermarket give-away. This makes five cars for Dr. Kunz, P.S. We're glad to know of someone who actually won one of those contests. We're also waiting to learn the name and address of the supermarket from Doc Thomassen.

Just had a call from Fred Winberg of American Aerovap Co., New York, to tell us that he seems to be safely out of the clutches of the doctors after a bout that lasted most of the summer.

Shades of Robin Hood! We published an item in this column a couple of months back about Jim Lawton, demon salesman for T. F. Washburn & Co., Chicago, and archer extraordinary. The guy actually uses a bow and arrow to hunt deer. Jim remembered our item and when we saw him a short time back presented us with a real, genuine Indian arrowhead he picked up in upstate New York. Claims the thing is about a thousand years old. We appreciate Jim's thoughtfulness, but now we have a problem. Where can we put the thing so that the kids don't snatch it and stick it on an arrow to shoot at the neighbors' kids?

The new so-called cold-water soaps for washing woolens are creating quite a stir in the consumer market. Soapers are looking at them with interest, too, because they do sell for a pretty fancy price. Although they are billed as "soap," one of our spies reports that he had one product analyzed in his company's lab. The thing turned out to be a neutral synthetic detergent.

The Christmas season of partying is

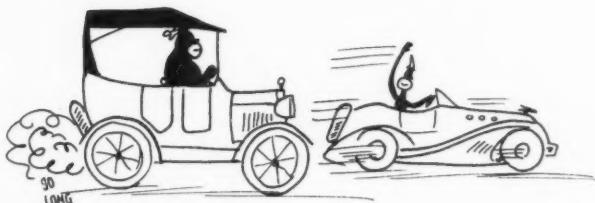
officially open. We have just received our invitation to the annual reception of Givaudan-Delavanna to be held in N. Y. C. in mid-November. From then on its just one party after another through Christmas.

Traditional toilet soap makers are holding their breath waiting for a predicted rush to market next year of a whole group of new synthetic detergents in bar form. These new toilet bars are supposed to be far ahead of anything developed up to this point. Although some of the new detergent bars are to be marketed by firms that already have big selling toilet soap bars, some of the non-detergent sellers of toilet soaps are really concerned with this invasion into a market that so far has pretty well resisted the transition from soaps to syndets.

Also watched with interest is Lever's test with "Lux" toilet soap in four different colors. The trend to color in soaps is getting into full swing. Whether the current craze in color will continue is the big question. One of the factors in the decision to go into color for soaps that have been traditionally white is the success of the toilet paper marketers in selling a colored tissue to match bathroom fixtures. But what about us poor guys that have black fixtures in the bathroom?

Aerosols are taking to the skies. Clarence Carter of Continental Filling Corp. of Danville, Ill. and Hobart, Ind., led the way by flying his own four-place, two engine Beechcraft. Now Clarence's sales manager, Jack Campbell, is also flying the Continental ship. Jack says "We're only as far as the nearest airport from our customers." This may be developed into a company slogan. Trouble is some of the airports aren't too near. Jack, incidentally, is a darn good pilot. We asked him if he had flown during World War II. "Nope," said Jack, "I was in the submarine service."

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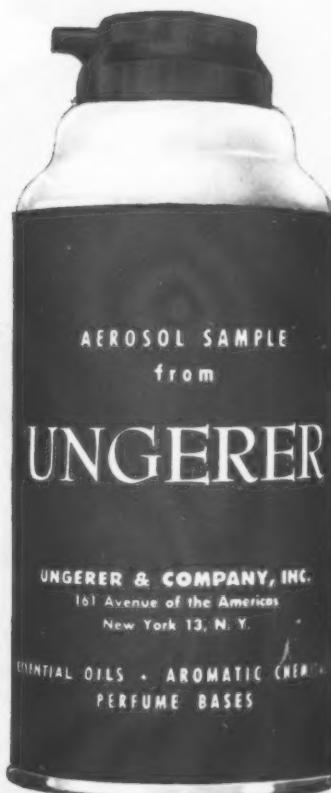
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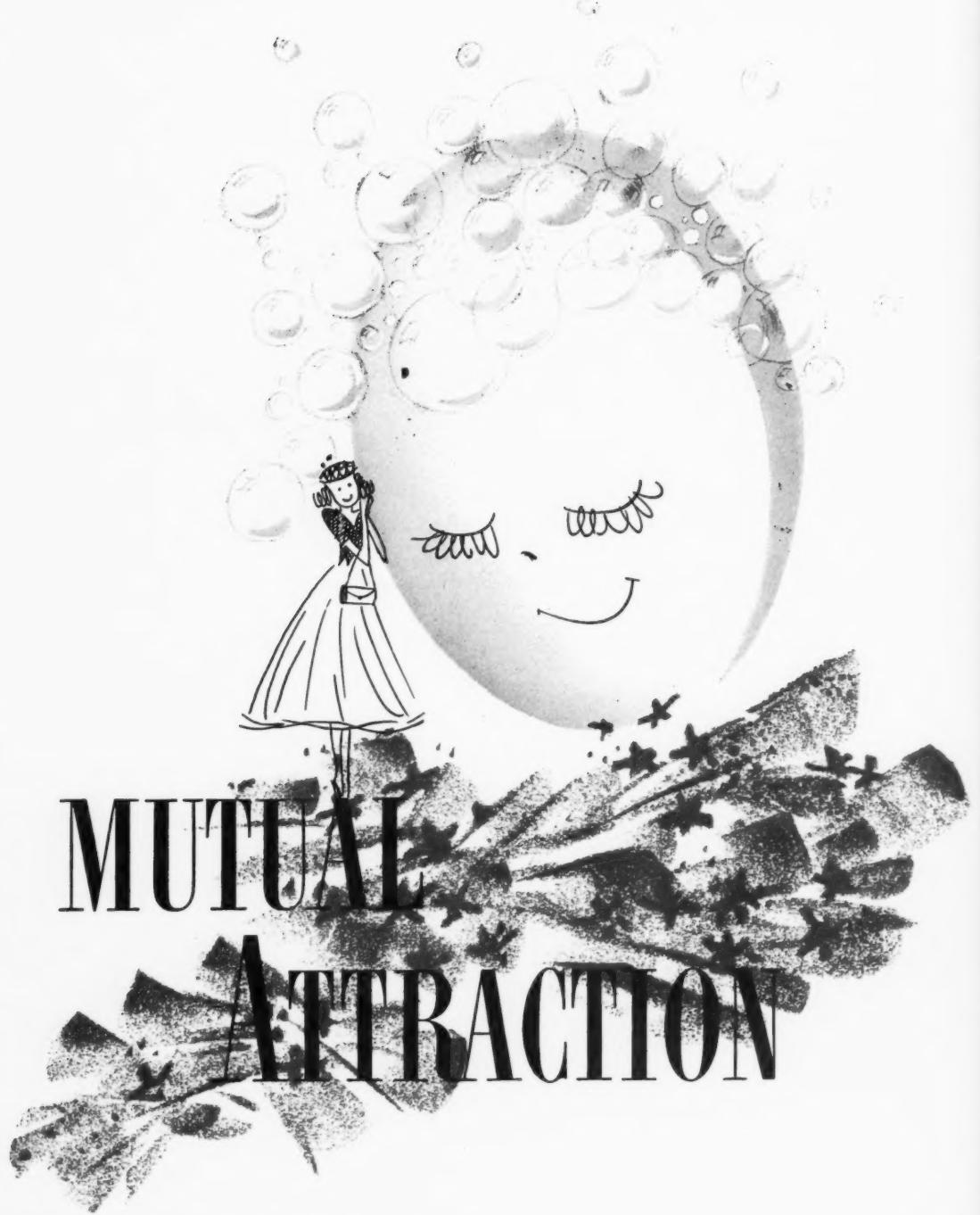
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